

RICE UNIVERSITY

**Involuted Matter**

by

**Jason Pierce**

A THESIS SUBMITTED  
IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE

**Master of Architecture**

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Houston, Texas  
May 2012

## ABSTRACT

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Rather than functioning as an icon, Involuted Matter dissolves into the background of commercial construction, conceals difference at the envelope, and orchestrates a succession of alternate environments. Accepting the unifying neutrality of a larger framework this project articulates difference at the individual site. But unlike iconic projects, the real force of this thesis unfolds through the interior. Identity is formed not at the level of district, but is centered on the individual occupation of a specific place.

The program for this project is a jimjilbang or Korean Bath House. The jimjilbang has the potential to become a new form of collective space not typical of the American metropolis. The bath house is simultaneously an intimate and egalitarian public venue and a private center for personal well being. Immersed in the same waters and ambient environments, clothed in matching jimjilbang attire, a plurality of classes, age groups, and social values congregate around a common program.



## ACKNOWLEDGMENTS

I would like to thank my wife for her enduring patientce throughout this undertaking and the support of my family.

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## involved matter

This thesis seeks to articulate the specific within the generic. Instead of functioning as an icon, this project will dissolve into the background of commercial construction, conceal difference at the envelope, and orchestrate a succession of alternate environments within.







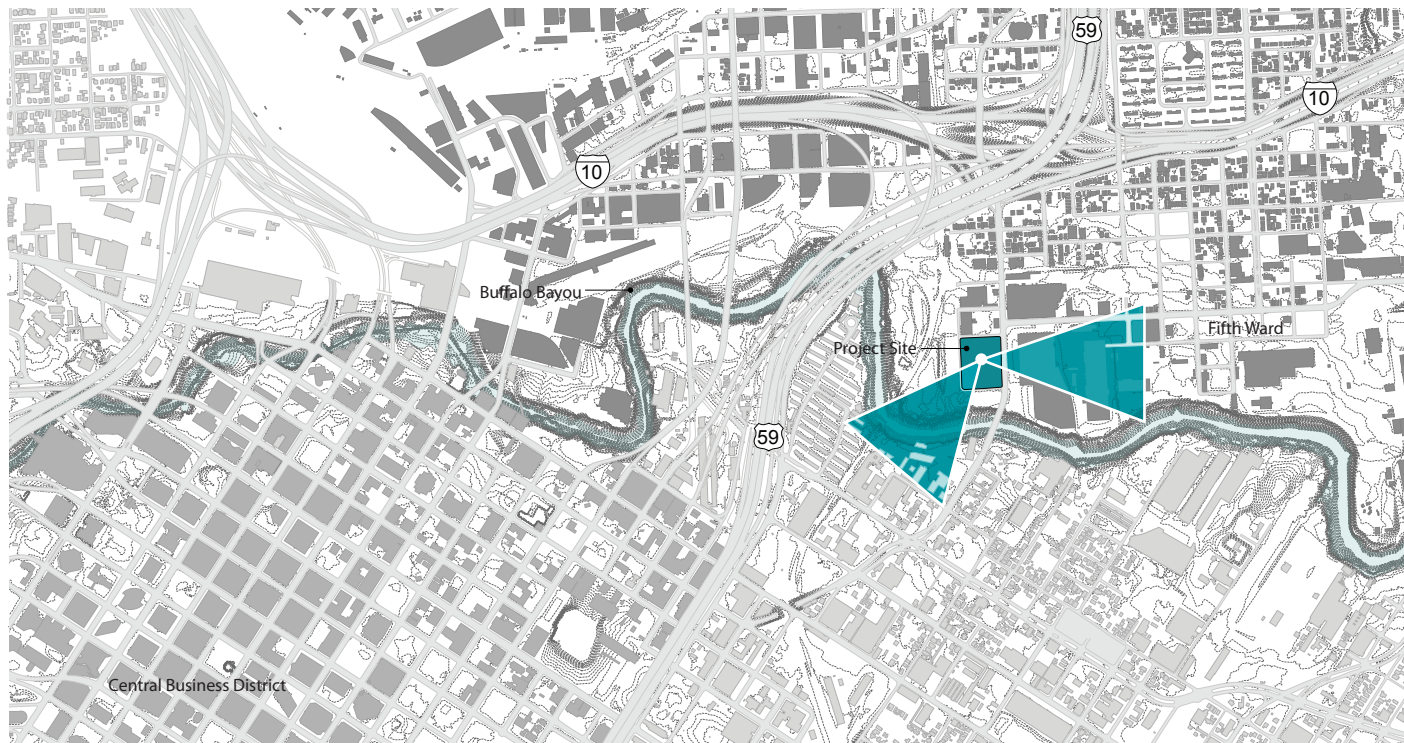
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4

interior icon

The icon and monument use formal legibility or differentiation at the level of external form to frame a sense of identity and make collective space. This thesis accepts the unifying neutrality of a larger framework and articulates difference at the individual site. But unlike iconic projects, the real force of this thesis will unfold through the interior. Identity is formed not at the level of district, but is centered on the individual occupation of a specific place





site map



view west



view east

## site

The project will be located in Houston's fifth ward district at the convergence of buffalo bayou and interstate 59 in a redeveloping light commercial and residential district facing Houston's downtown.

## site character

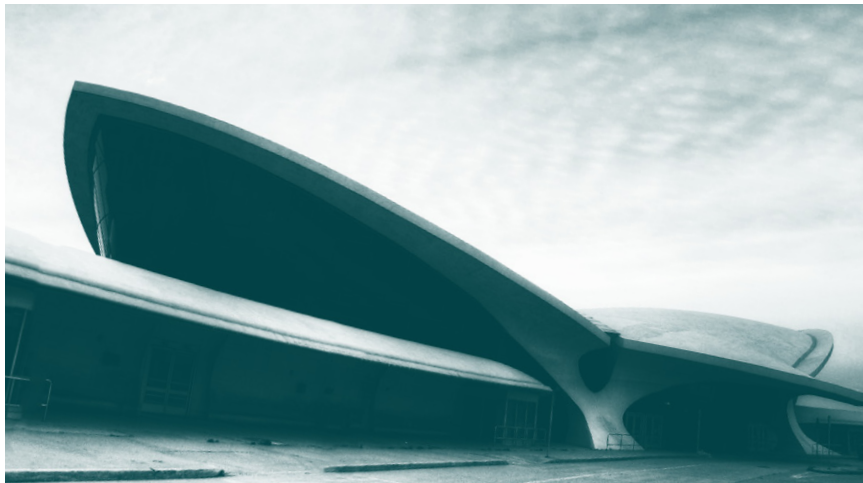
This site offers the possibility of engaging multiple publics from within a zone characterized by tilt-up warehouse construction. The western view offers a look over Buffalo Bayou, a space occupied by cyclists, kayakers, and trail hikers. Beyond the Bayou stands Houston's central business district. To the east lies a series of low slung warehouse buildings which typical to this area.



Neue Nationalgalerie : Ludwig Mies van der Rohe : 1968

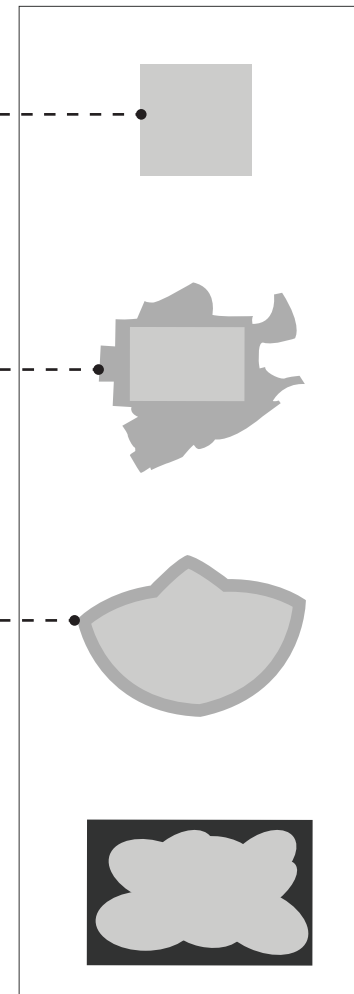


Walt Disney Concert Hall : Frank Gehry : 2003



TWA Flight Center : Eero Saarinen 1962

proposed model



precedent series

### container and contained

To place this project in an historical context I have chosen three critical precedents. Mies van der Rohe's Nationalgalerie represents a generic container and contained volume. Frank Gehry maintains the generic contained volume and places it within a highly articulated container, while Eero Saarinen compresses the articulated volume and container into a single form.

My proposal reverses the relationship of articulated form and generic space. Exterior form becomes part of a generic background while the interior volume functions as an unexpected world and establishes a specific place within the generic.





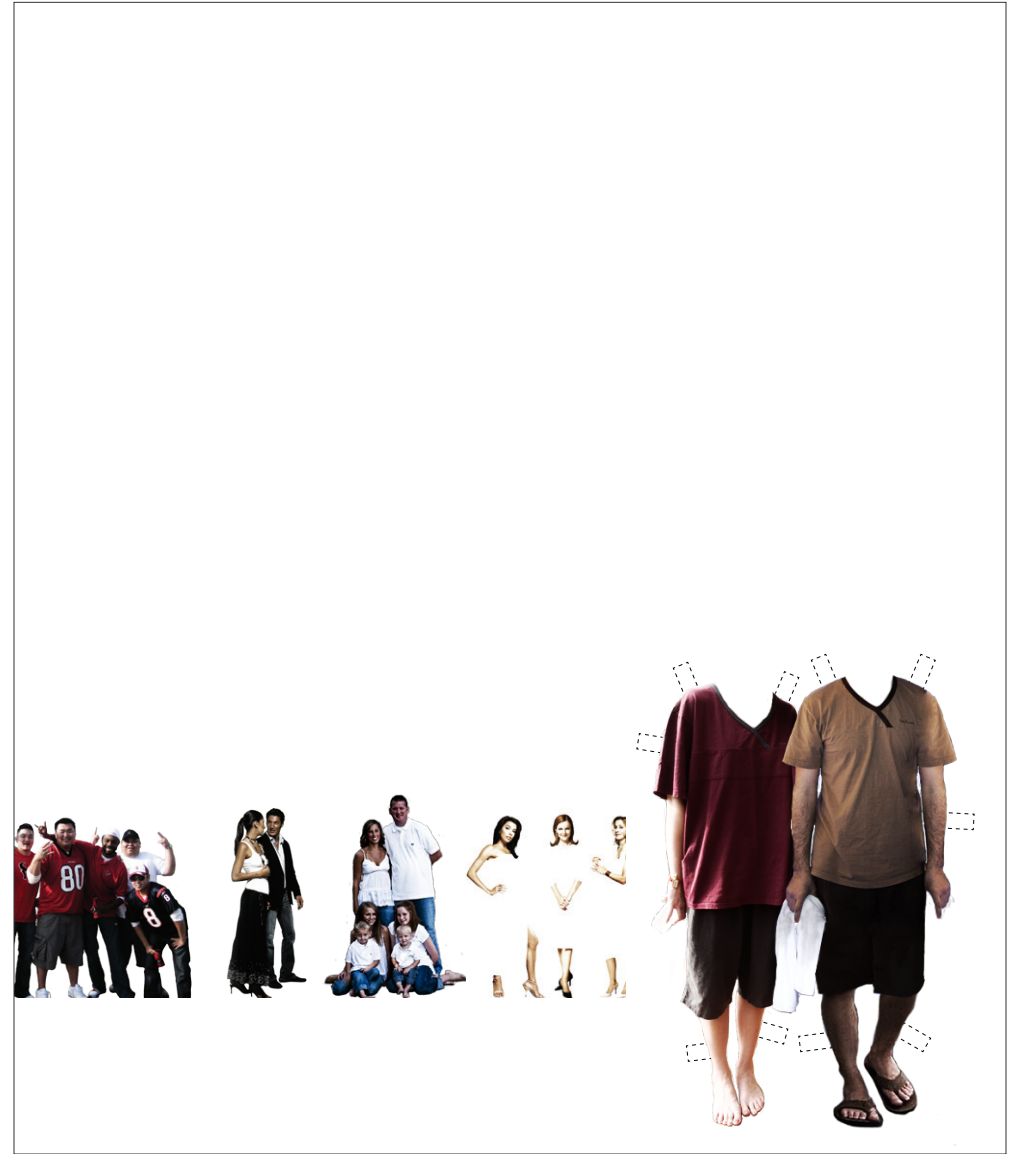
Shinsegae Spa World



Shinsegae Spa World

## jimjilbang

The program for this project is a jimjilbang or Korean Bath House. The jimjilbang has the potential to become a new form of collective space not typical of the American metropolis. The bath house is simultaneously an intimate and egalitarian public venue and a private center for personal well being.

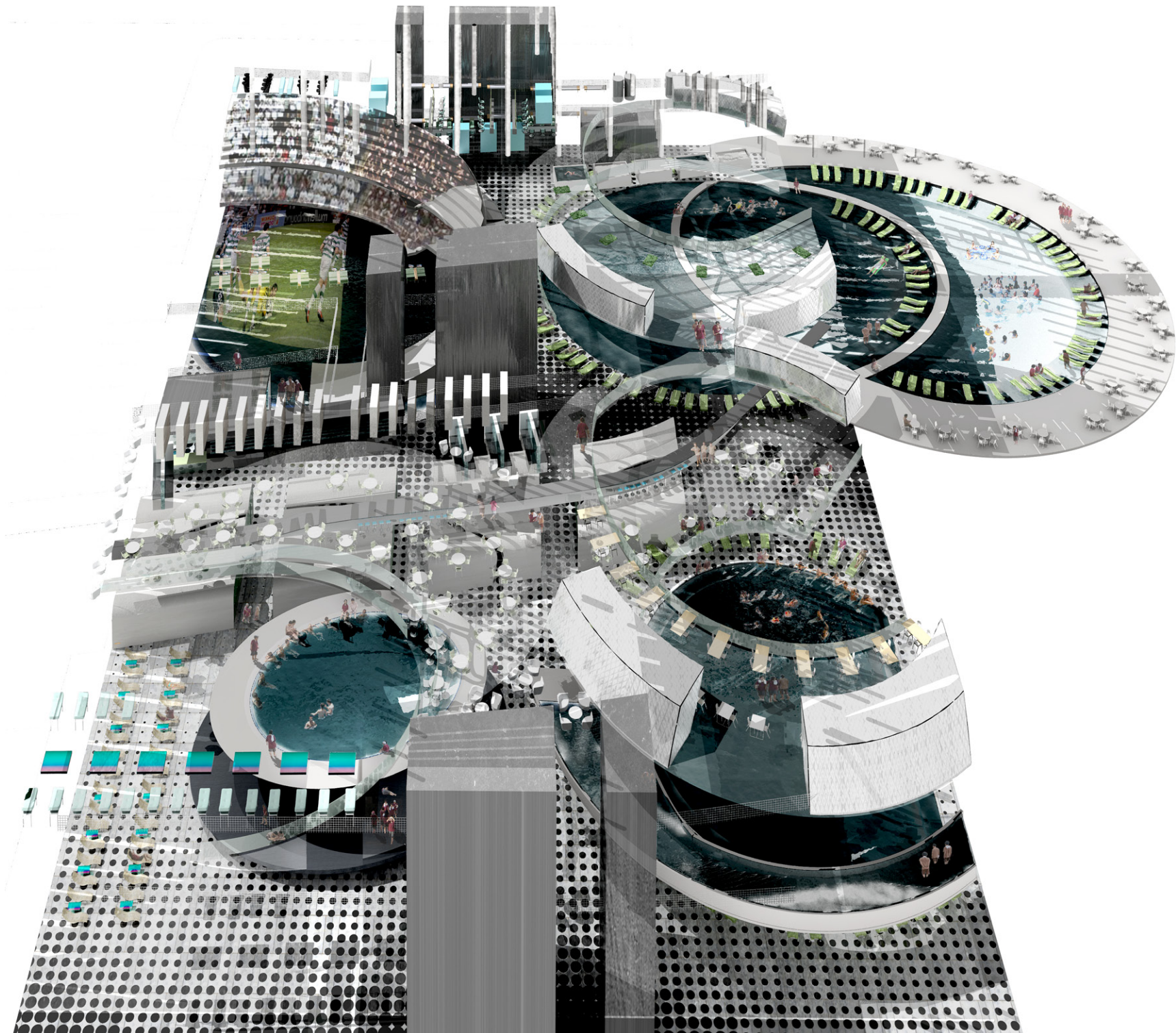


collective diagram

## collective

Immersed in the same waters and ambient environments, clothed in matching jimjilbang attire, a plurality of classes, age groups, and social values congregate around a common program.

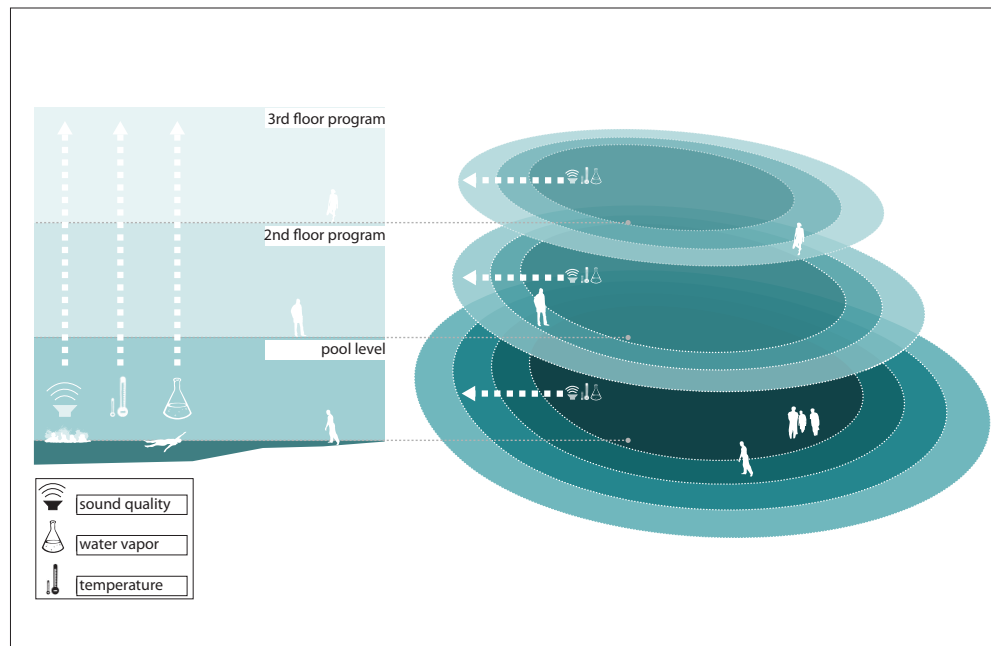




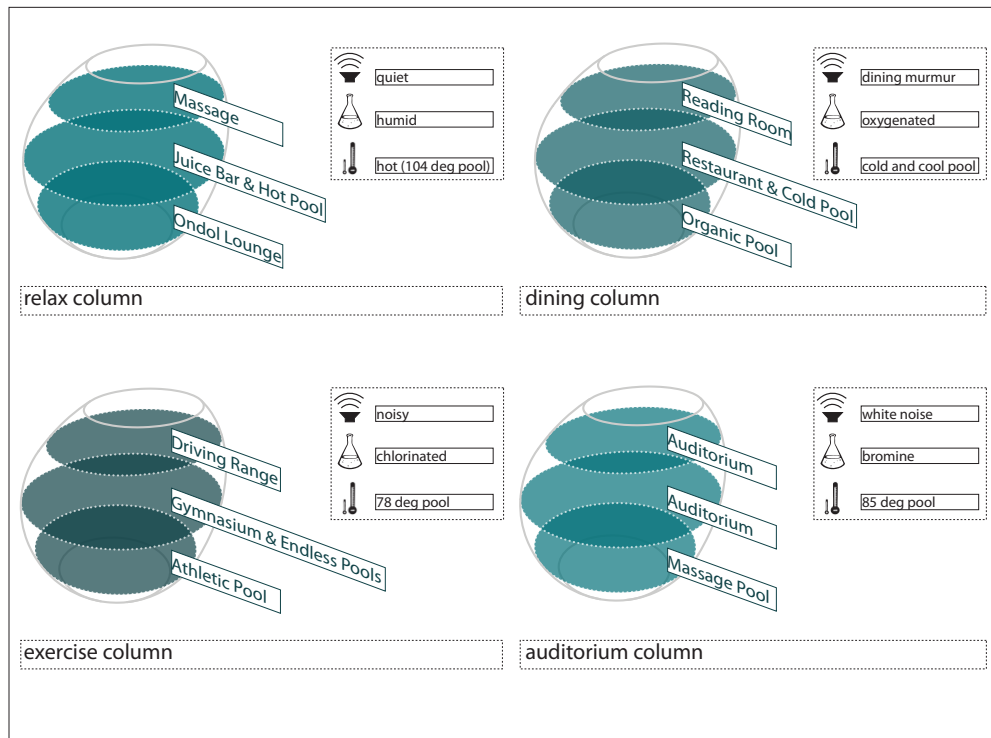
## jimjilbang

The jimjilbang is best described as a day spa water park hybrid. It's low admittance cost and ubiquitous presence in Korea makes it accessible to everyone. The jimjilbang serves as popular place for a first date, is used on weekends by families taking a mini vacation close to home, and fills to capacity during major events such as the world cup when fans gather to cheer for their team in a common environment.

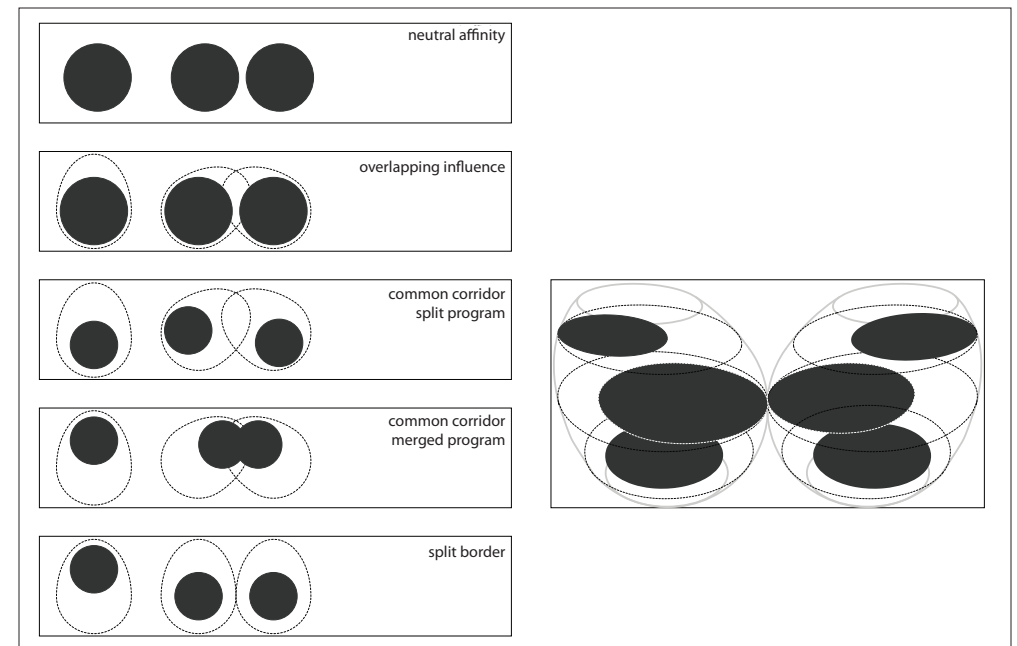




ambient volumes



program distribution



egg and yolk diagram

## ambient volumes

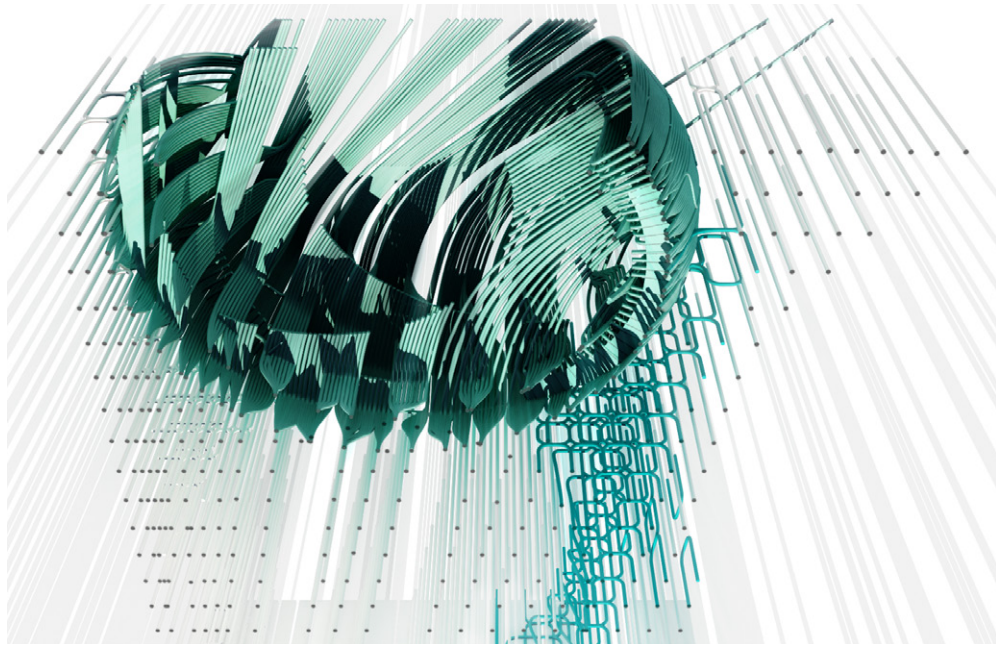
The program is arranged in four major groups or ambient volumes, these groupings initiate the potential for making distinct worlds. Sound such as kids splashing, lap swimming, or water jets, the chemical quality of each pool, temperature, and humidity serve to immerse the inhabitants in a unifying sensorial matrix.

## program distribution

The four programmatic volumes are a relax column, dining, exercise, and auditorium. The relax column is quiet, hot, and humid. Dining is characterized by the low murmur of a dining crowd and coupled with an organic cool pool and cold pool. The exercise column is a bit warmer and noisy, while the auditorium column is filled with white noise and a warm pool.

## egg and yolk

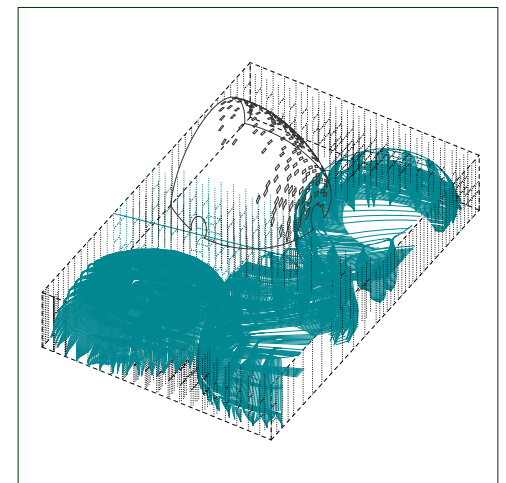
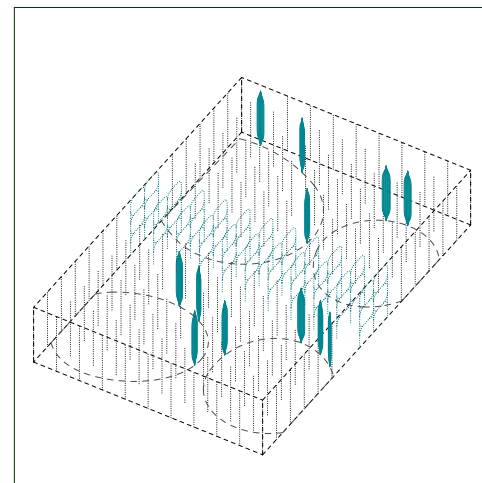
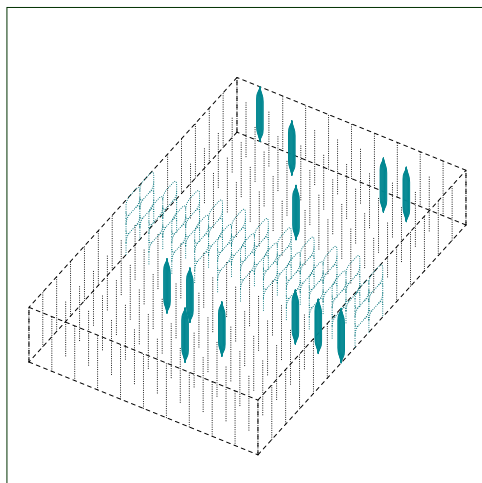
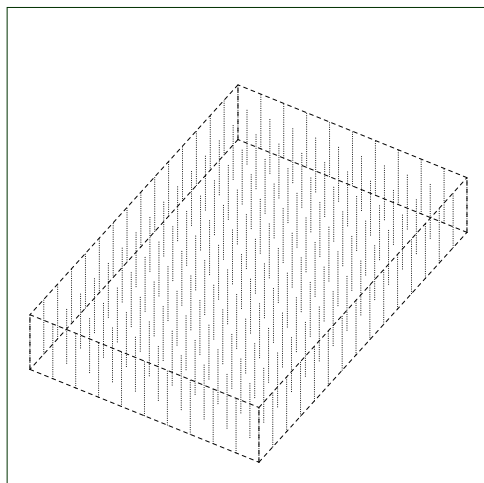
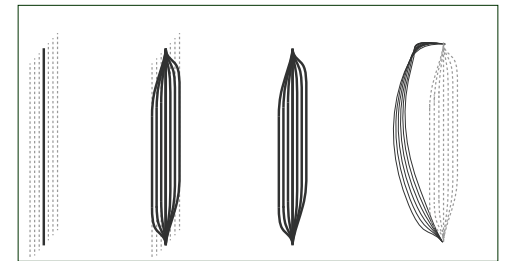
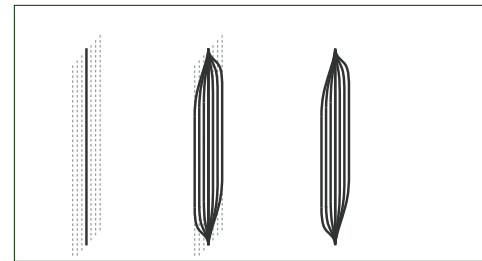
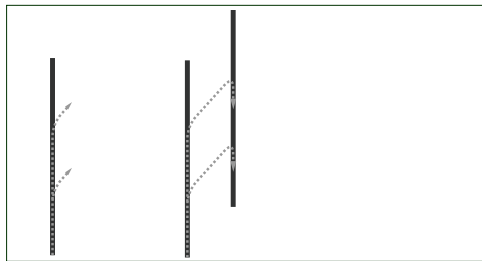
These volumes and program elements have been deployed through an egg and yolk strategy which allows a continuous sequence of volumetric space and a separation or combination of the programmatic yolk. Egg volumes maintain a successive continuity while the programmatic yolk shifts within the egg. Programs with a common use group adhere to adjacent surfaces while disparate elements repel.



### translation from generic grid

This thesis, sited in a light commercial district, uses tilt-up concrete slab and column warehouse construction as its base.

The generic column grid is translated from a modernist infinite extendability into the volumetric specificity of baroque poche. Columns translate from slab and engaged column at the perimeter wall, through an intermediate stage as folded arch, and into an articulated column wall which defines the primary volumes.

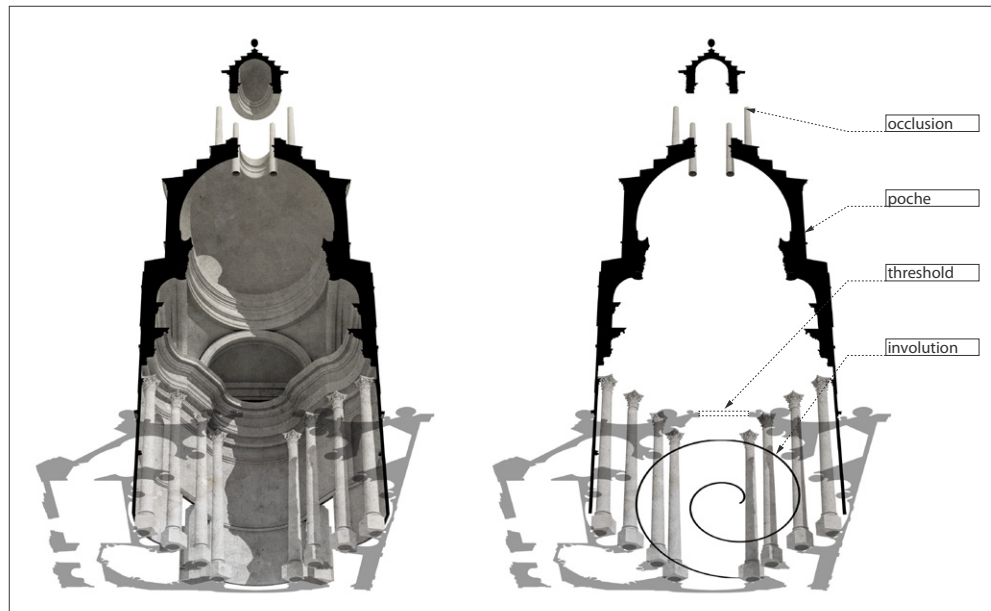


generic

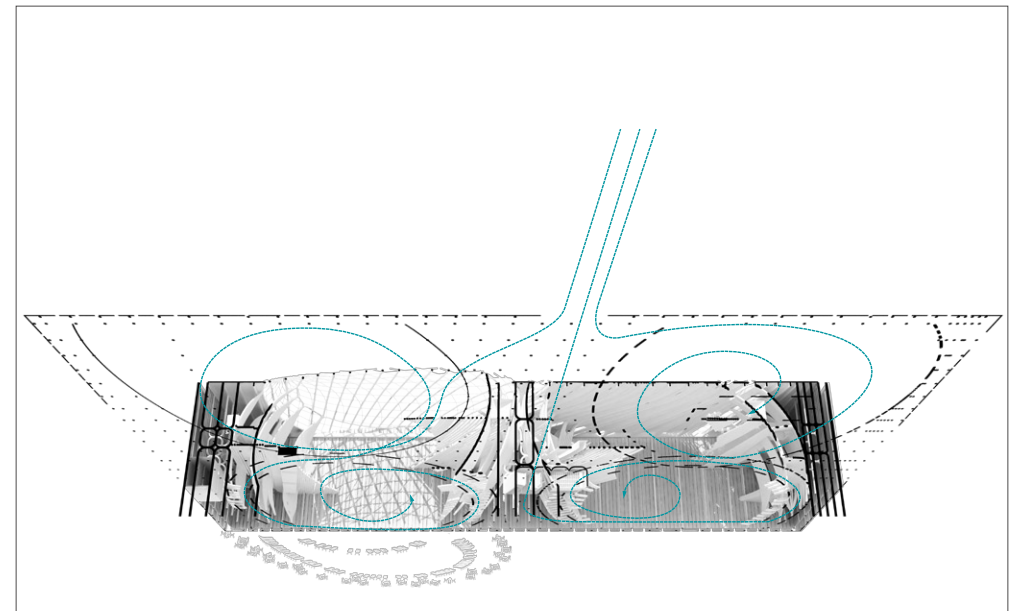
slab to arch

adhesion to program

column articulation



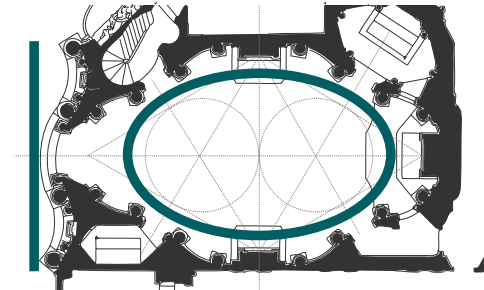
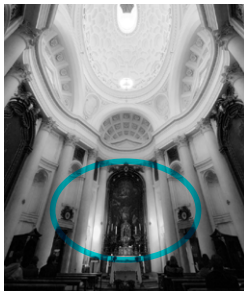
Borromini's San Carlo alle Quattro Fontane



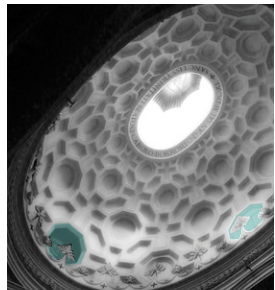
baroque embedded



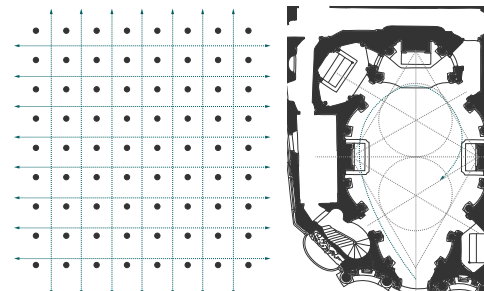
threshold



poche



occlusion



involution

## embedded baroque

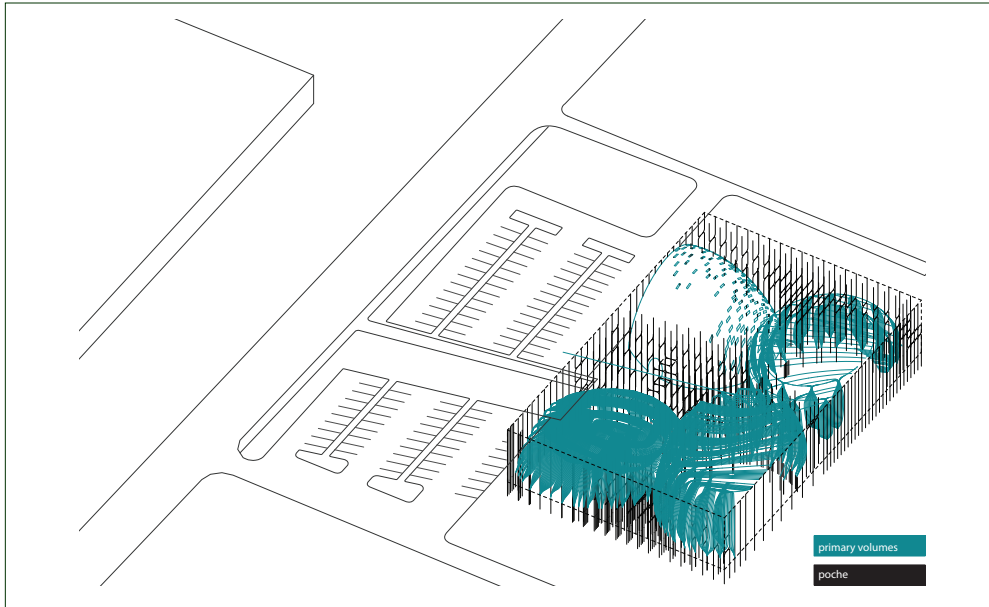
Of course, this isn't the first time that architecture has addressed the problems of collectivity and interiority. During the baroque period, a time of destabilization for architecture and social continuity, a coherent collective emerged from a heterogeneous public. As a model for collective space and interiority, baroque architecture has served as a precedent for this thesis. From Borromini's San Carlo Alle Quattro Fontane I have extracted four formal and organizational principles; threshold, poche, occlusion, and involution.

Threshold, poche, involution, and occlusion converge within this interior collective environment in order to define a specific territory within the generic urban fabric.





exterior perspective

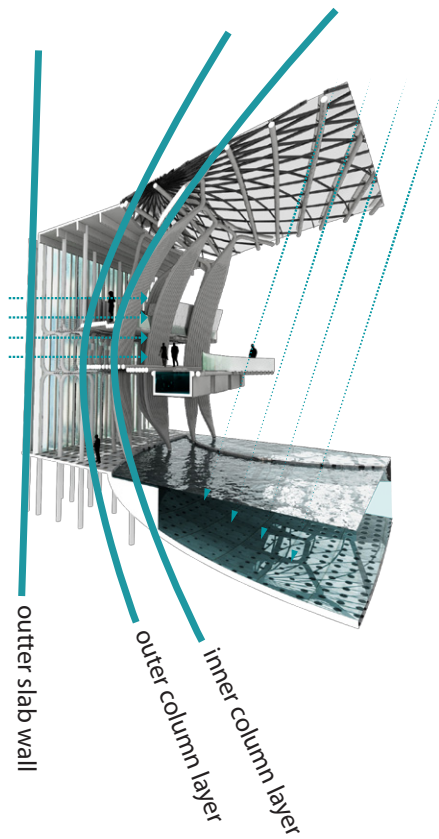


poche diagram

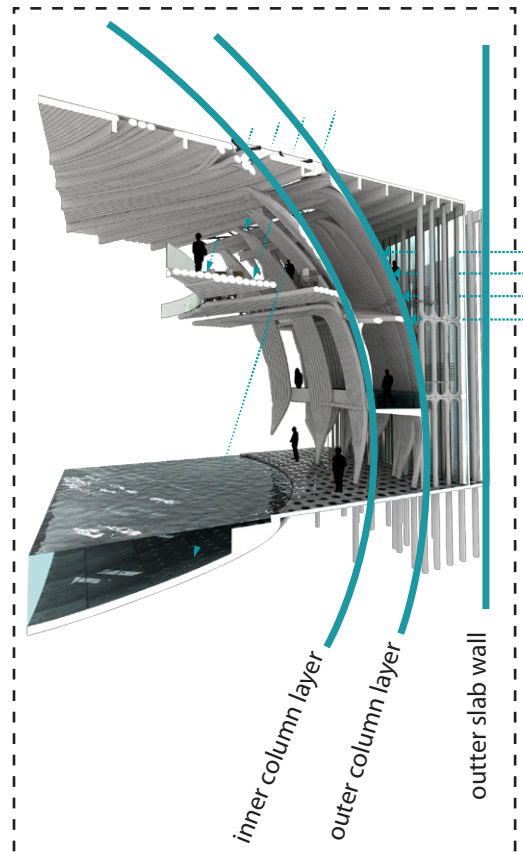
## threshold and poche

The baroque cathedral severs inside from outside. The exterior form maintains continuity with the street environment registering as part of a greater whole, while the inside opens into an unexpected volume. A heavily articulated poche enables this radical formal transition from linear to involuted. The primary public volumes are here represented in blue and the poche in black framing the involuted volumes.

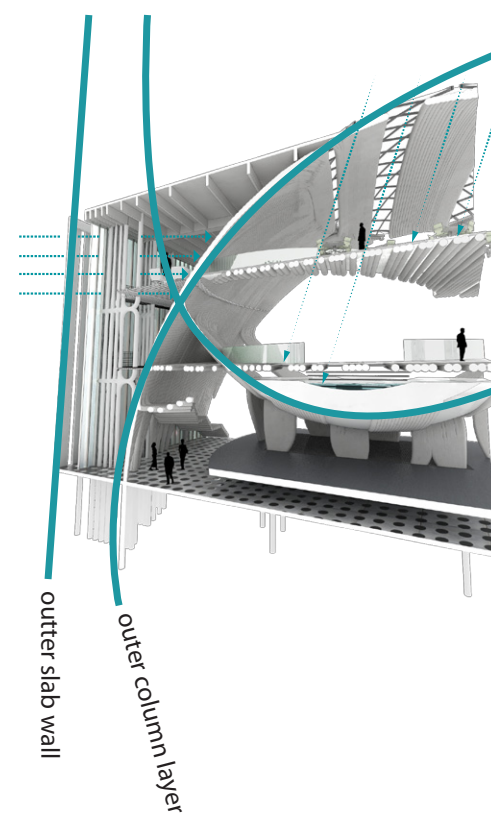
open ..... closed



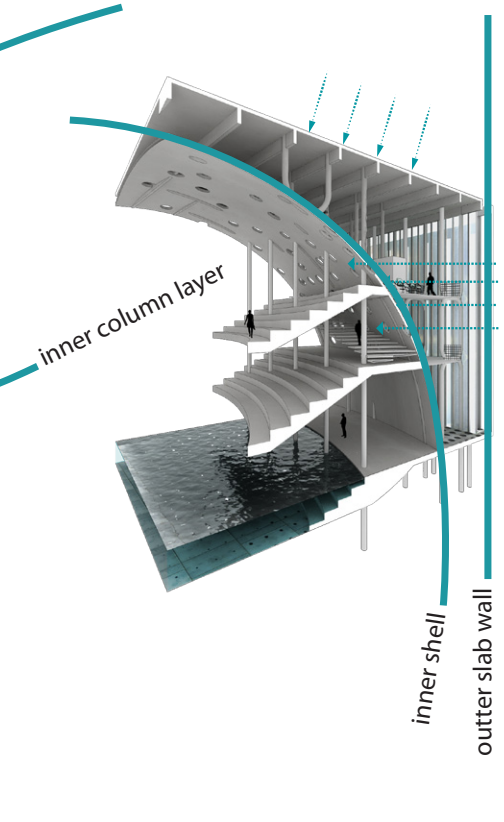
exercise volume



dining volume



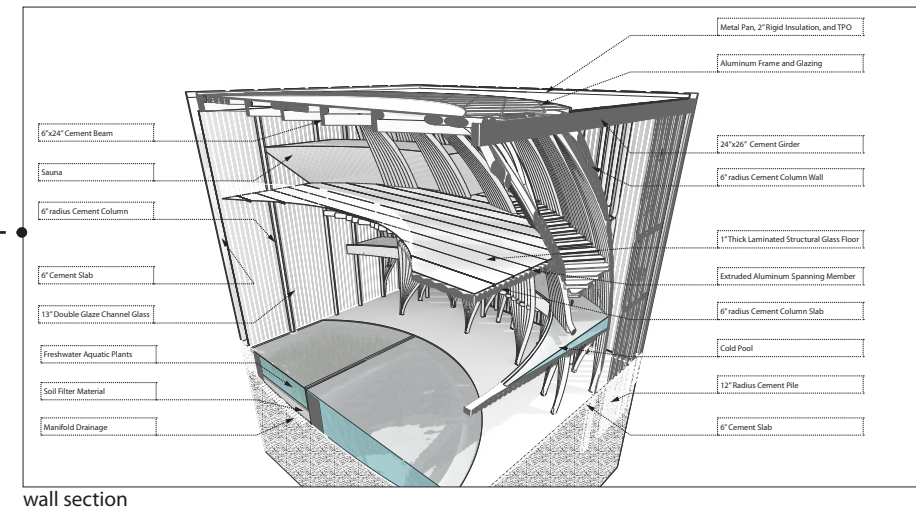
relax volume



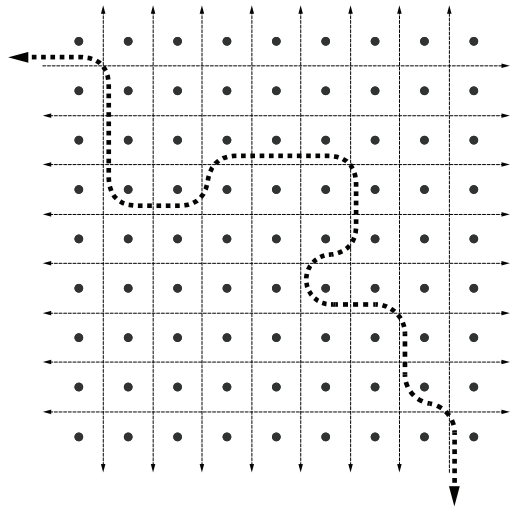
auditorium volume

## occlusion

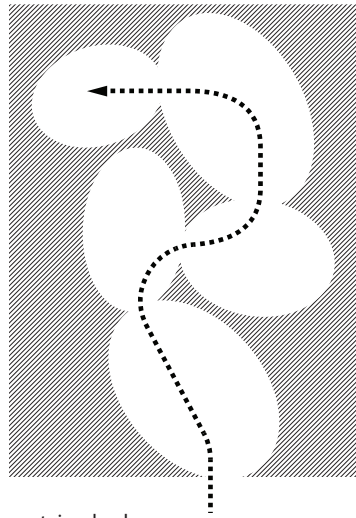
Occlusion reinforces the totality of the interior world, light becomes an organic part of the whole. The aperture is the primary point of interference between exterior and interior. This serves as a departure point for articulating variation in the folded column system which defines each ambient zone and reinforces the distinct quality of each world. Working from open to closed the double layer of columns and perimeter slabs interact to provide a dynamic range of natural light.







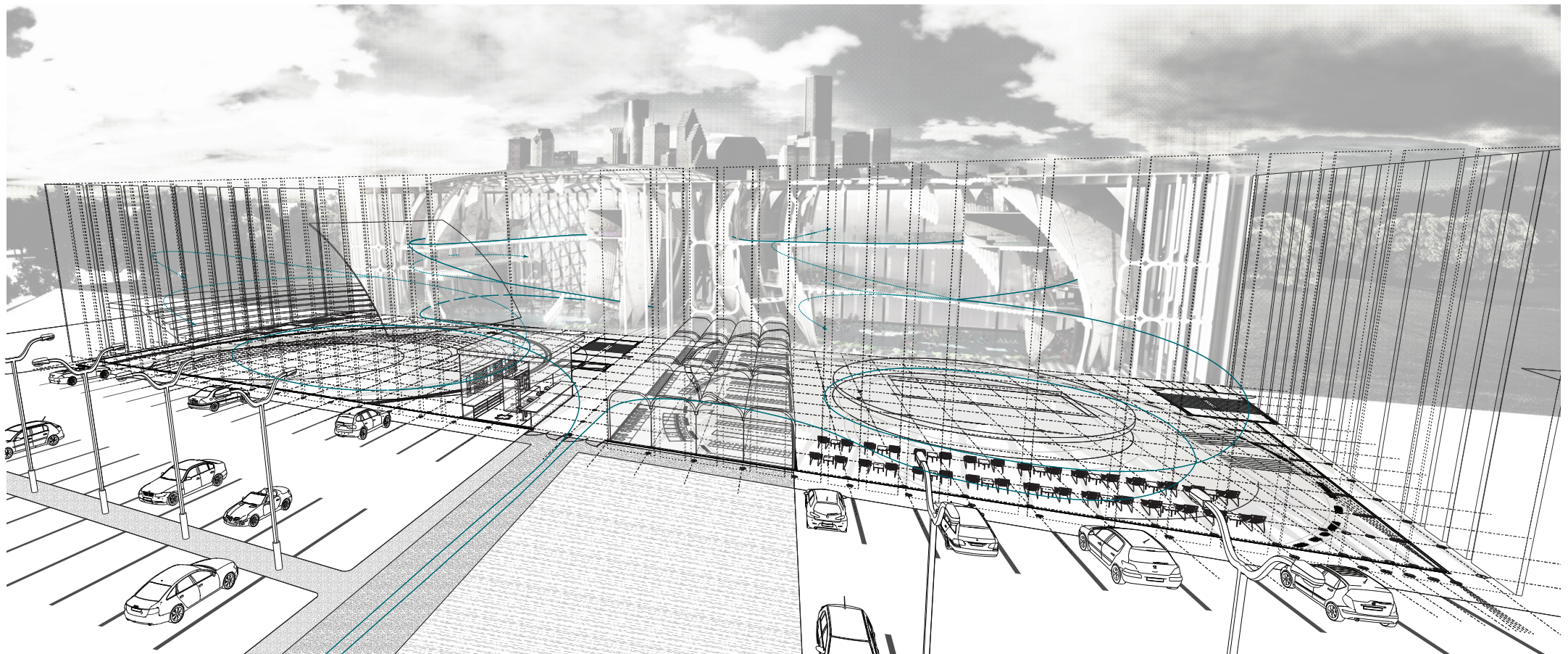
column field



contained volumes

## involution

Involution suggests a volumetric spatial conception. In place of the generic extrudable column field, involution substitutes specific contained volumes. While the column field implies an involutioned procession through space, involutioned space suggests a path. This volumetric sensibility provides the opportunity to orchestrate spatial succession and chain program elements.

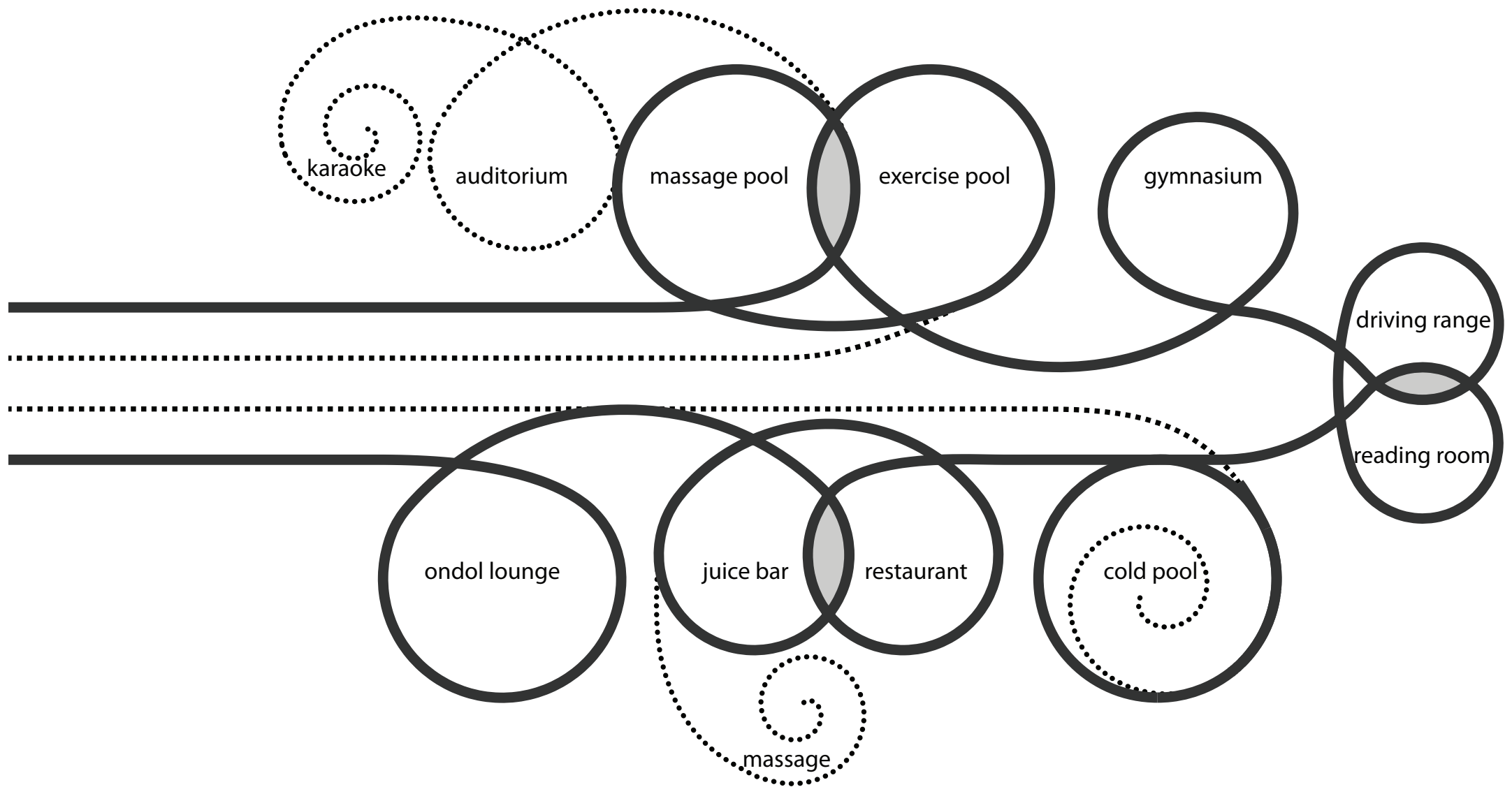


spatial succession



## plan gradient

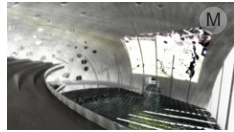
The floor plan graduates from a threshold poche containing lockers and private functions through an intermediate peripheral zone which frames the large public voids



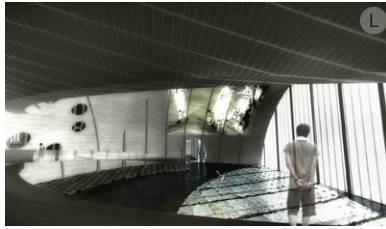
### succession

The peripheral space between private poche and public void operates through a series of involuted paths. Moments of bifurcation shaded in grey, represent the collision of ambient column zones. The peripheral zone is characterized by the patterns of movement and group activity.

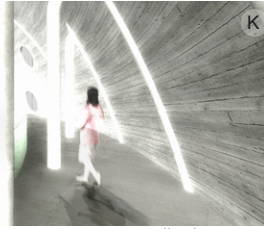
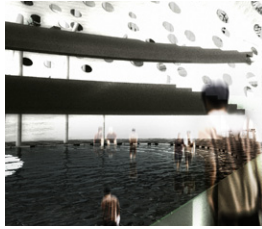




upper auditorium



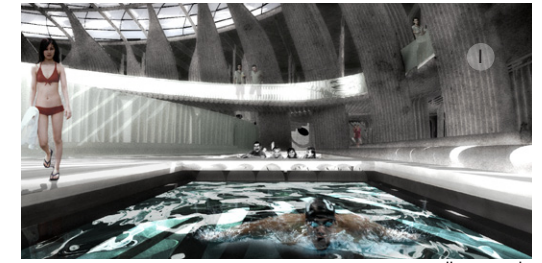
mid auditorium



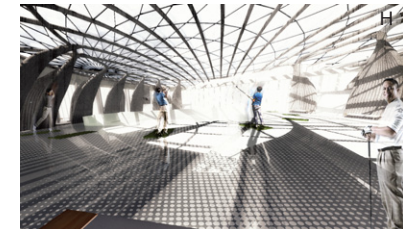
auditorium ramp



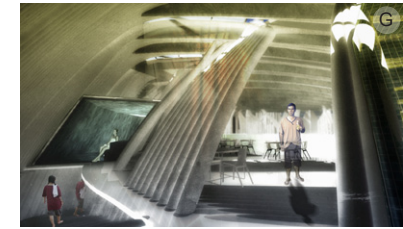
diving pool



endless pools



driving range



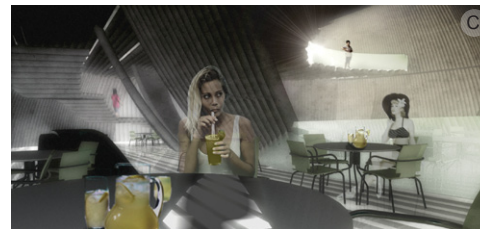
reading lounge



entry



ondol heated lounge



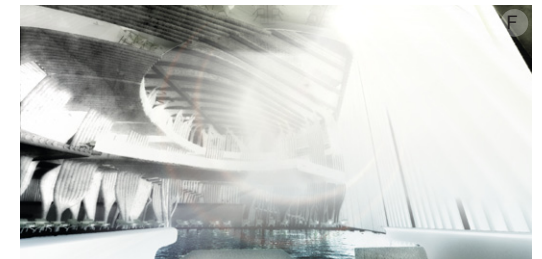
juice bar



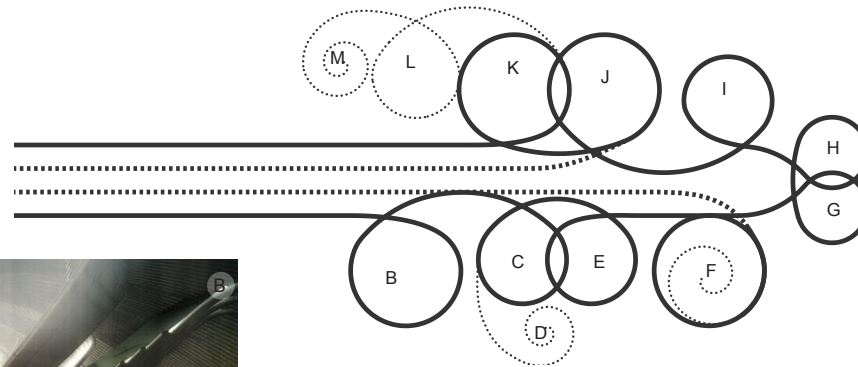
cold pool



upper lounge



restaurant pool



## succession sequence

The jimjilbang patron first approaches a nondescript box from the parking lot. Locker rooms line the entrance promenade through the center of the project. After that one of four public volumes can be accessed directly. Walking through one example the patron enters the humid enclosed space of the ondol lounge and moves up through the juice bar which

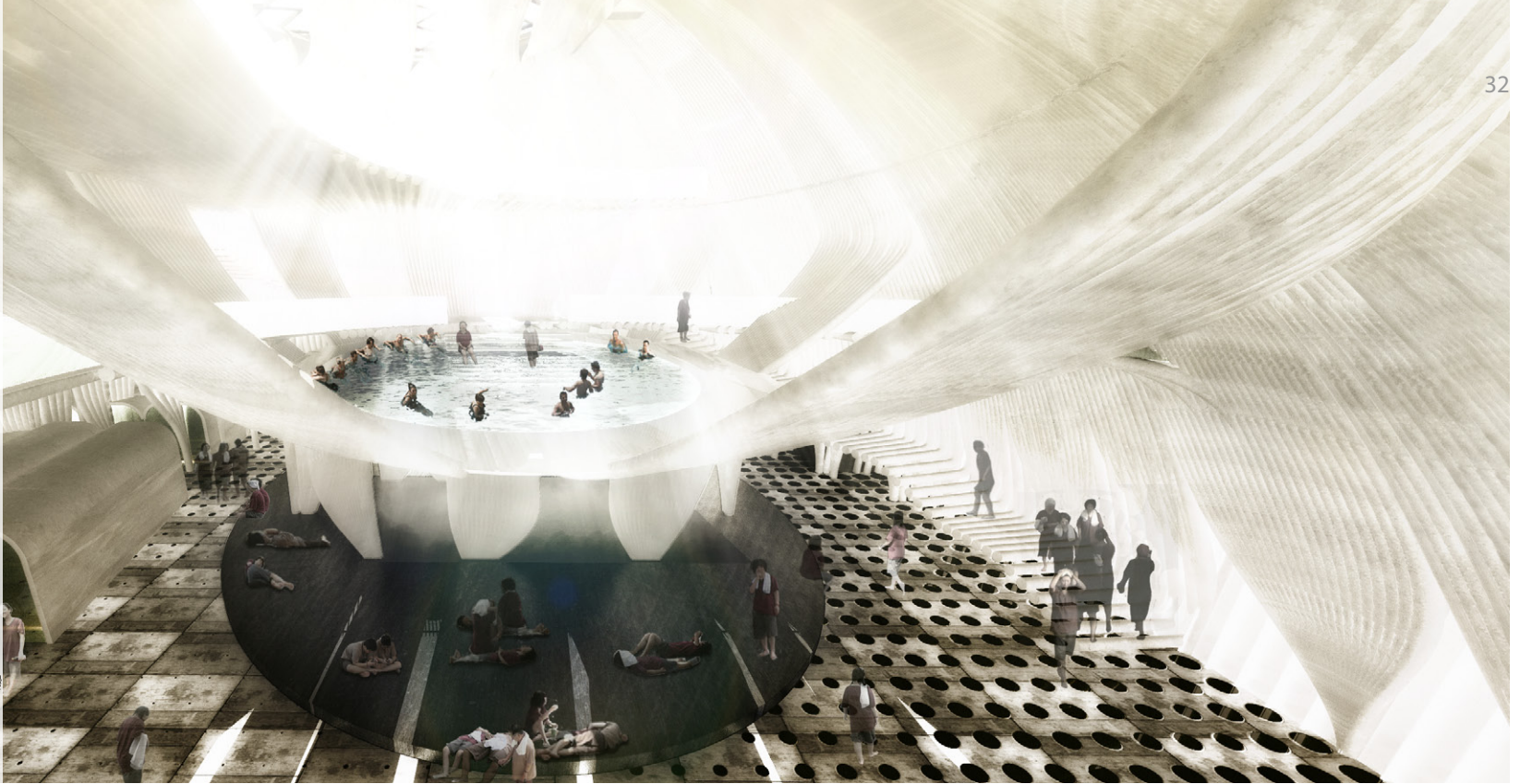
bifurcates into the cold pool. Moving up through this space, the patron ascends into the reading room and bridges over to the exercise volume. This space is the most open and offers views out into the entire facility. A descent back down to the pool level reveals an opening to the massage pool and auditorium complex.



## qualitative difference

The four ambient columns act as an interlocked set of worlds each qualitatively distinct from the last, each constructed by a calibration of a single matter

The relax volume is lit by a single slot at the roof intersection simulating the single point source tenebre space of Rembrandt.

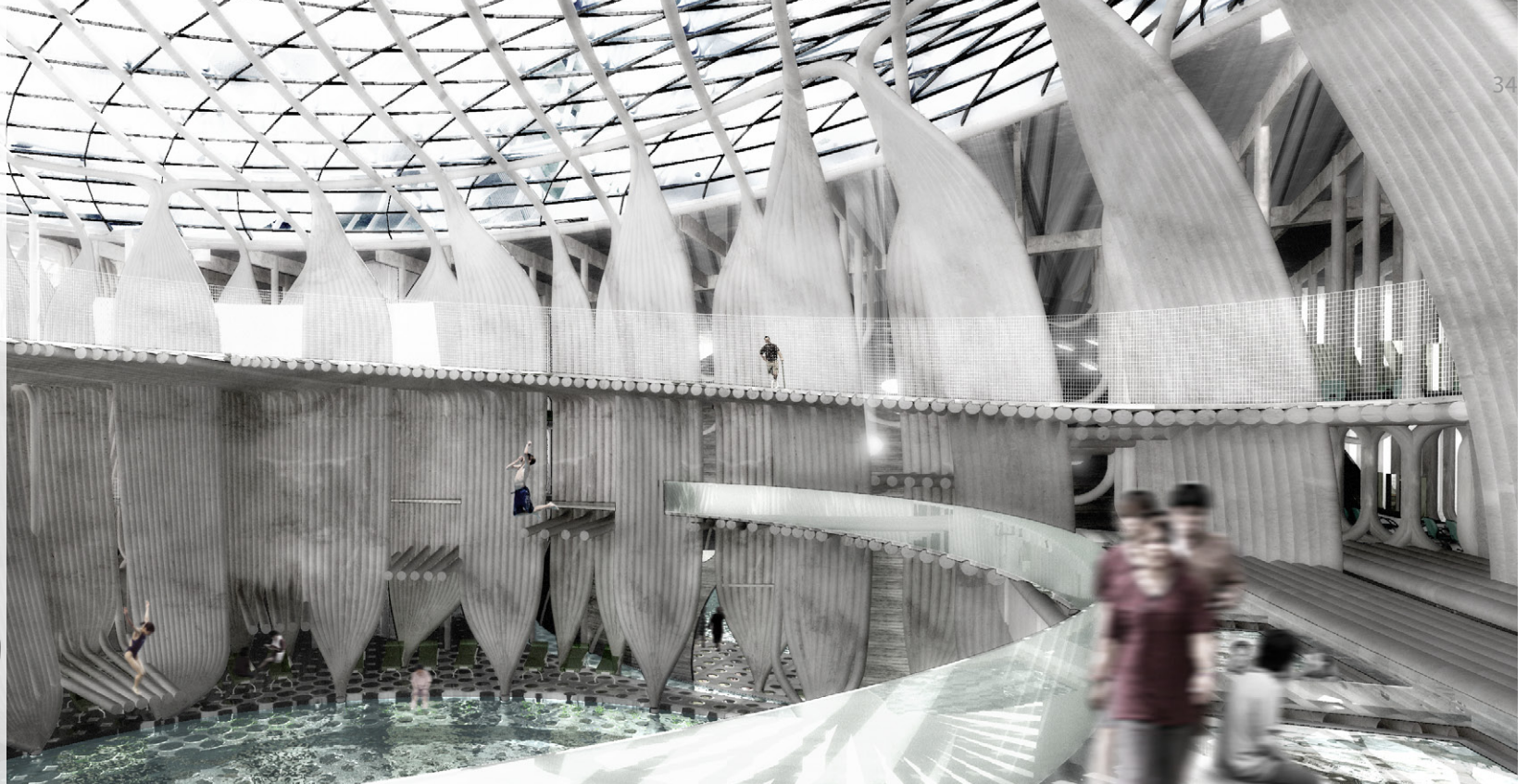
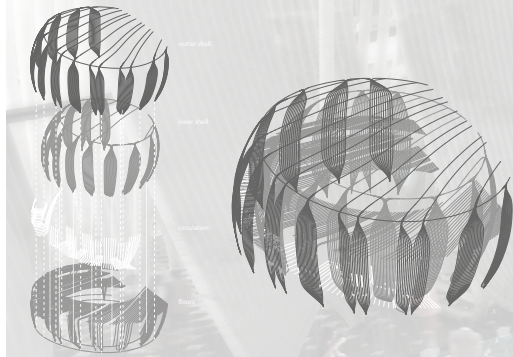


The restaurant voume is constructed by an interwoven screen, creating the high contrast quality of chiariscuro.

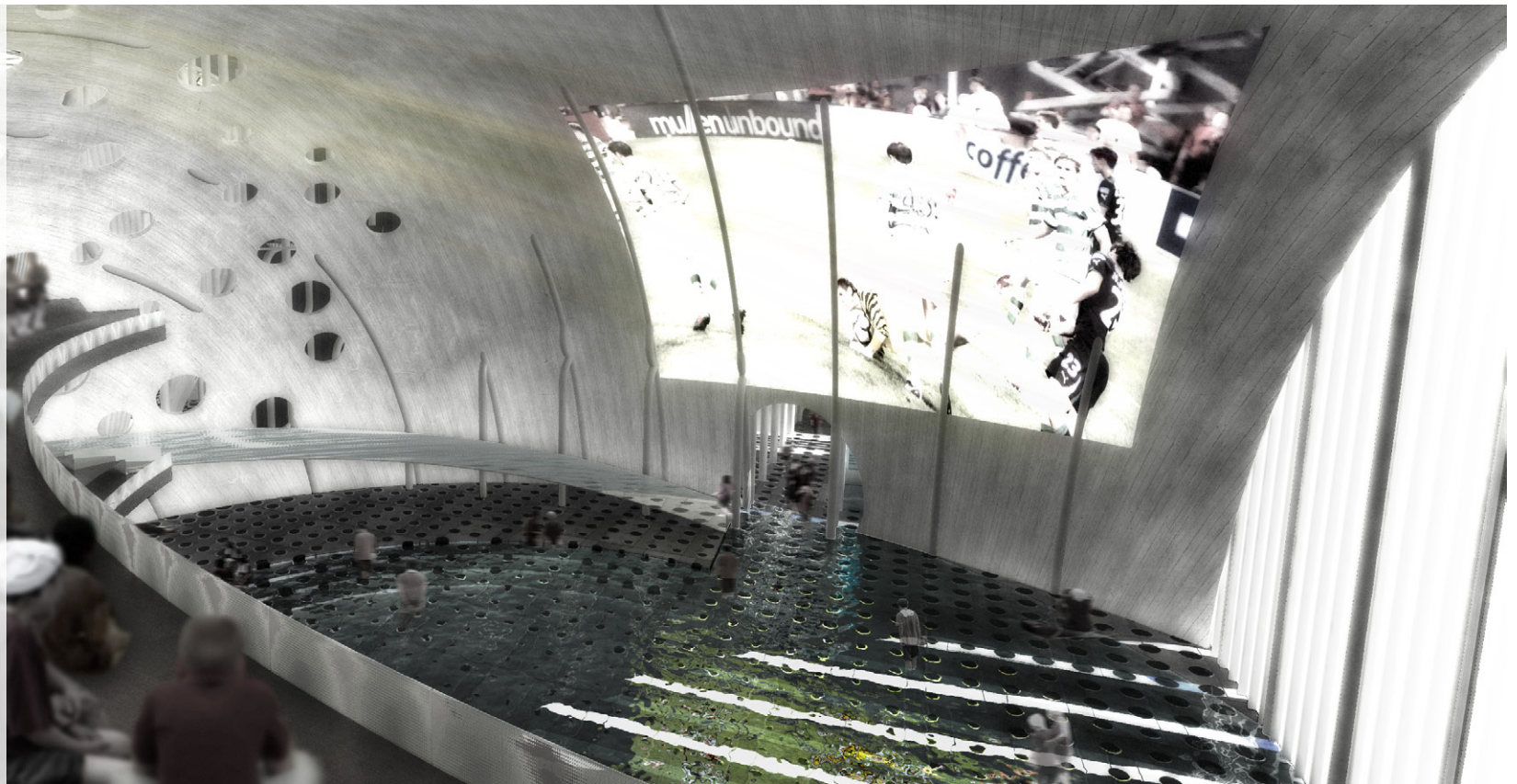
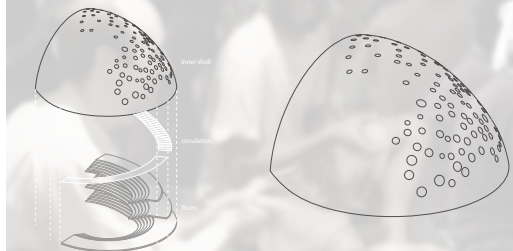




The exercise volume opens up to a maximum set of view and intensity of exterior light matching spatial quality to programmatic intensity while paralleling the expansive view of a baroque garden.



The final volume is constructed of a concrete shell framing a grotto like environment suited to an auditorium and massage pool hybrid space.

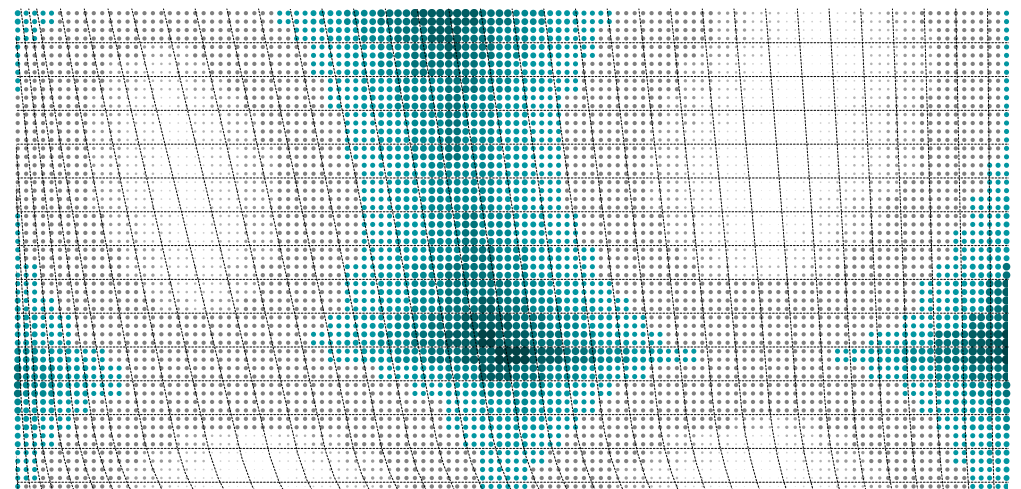






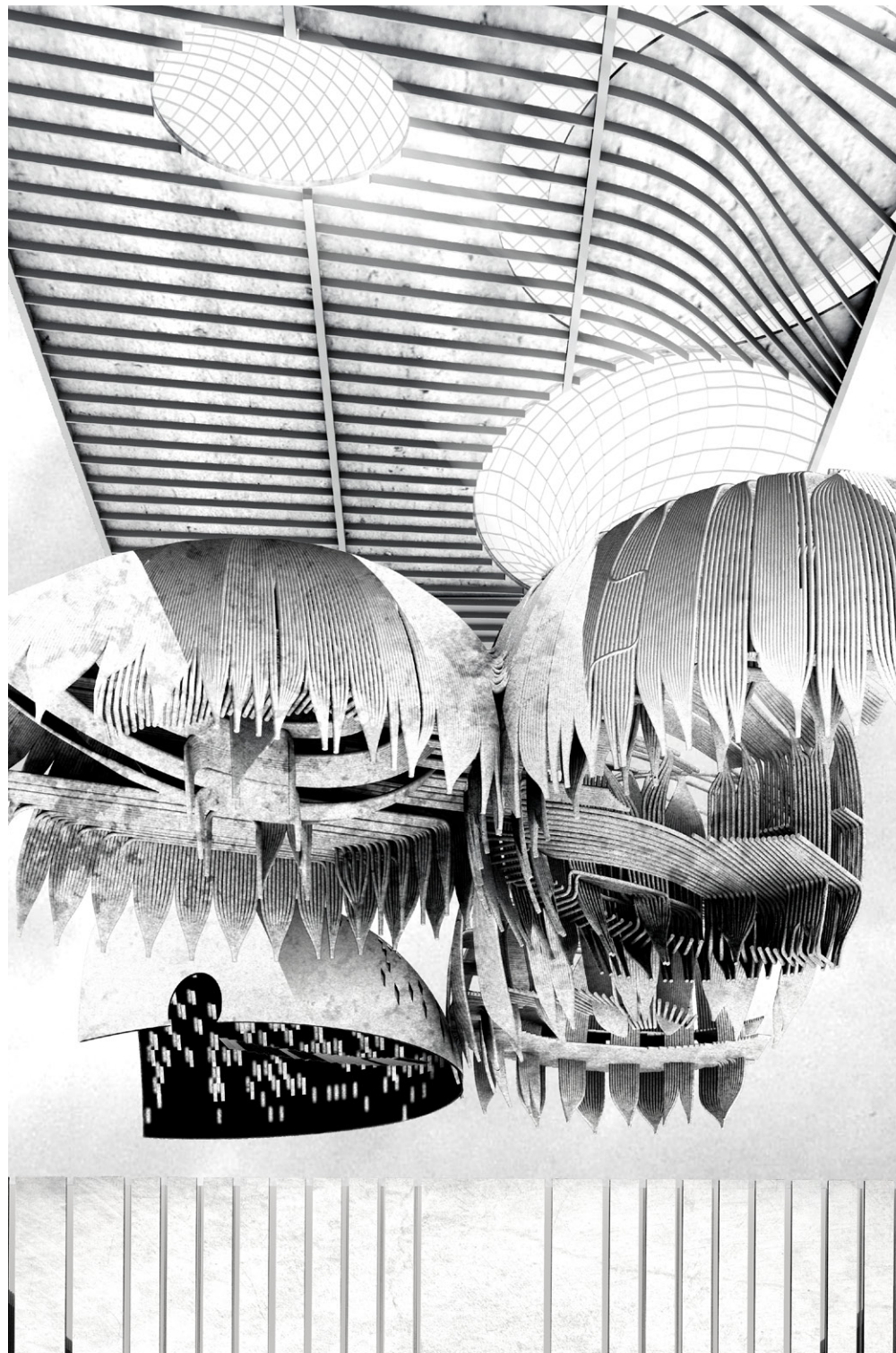
### fifth space

These spaces are framed and made possible by the fifth space columnar poche which houses tertiary programs characterized by single user occupation.



poche diagram

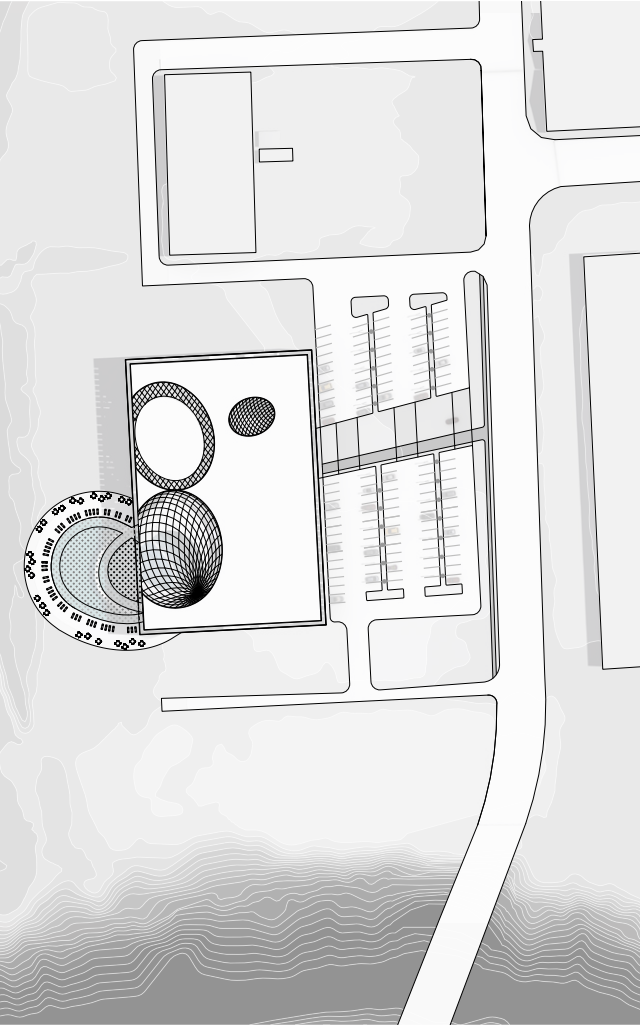




enlargement

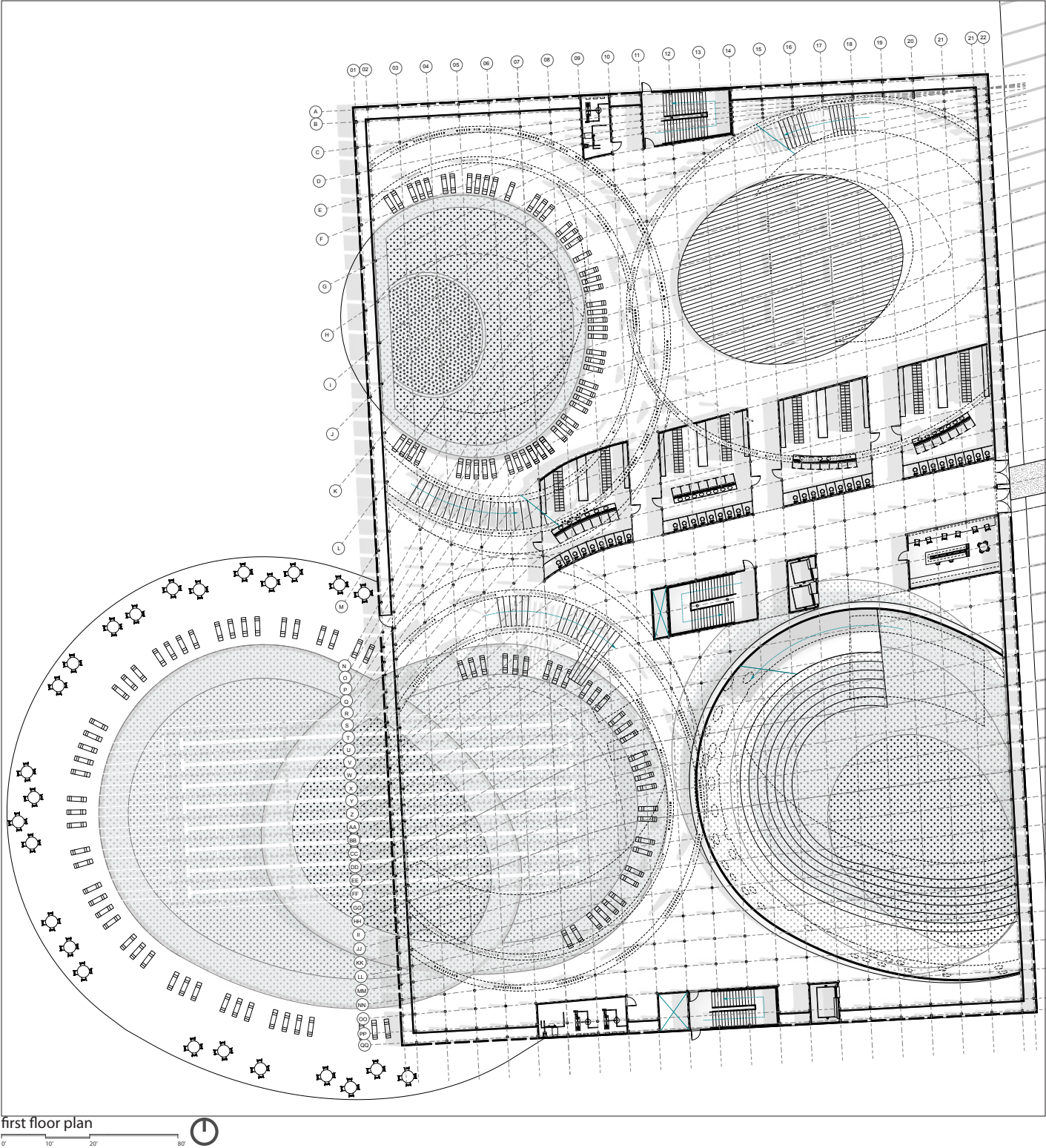






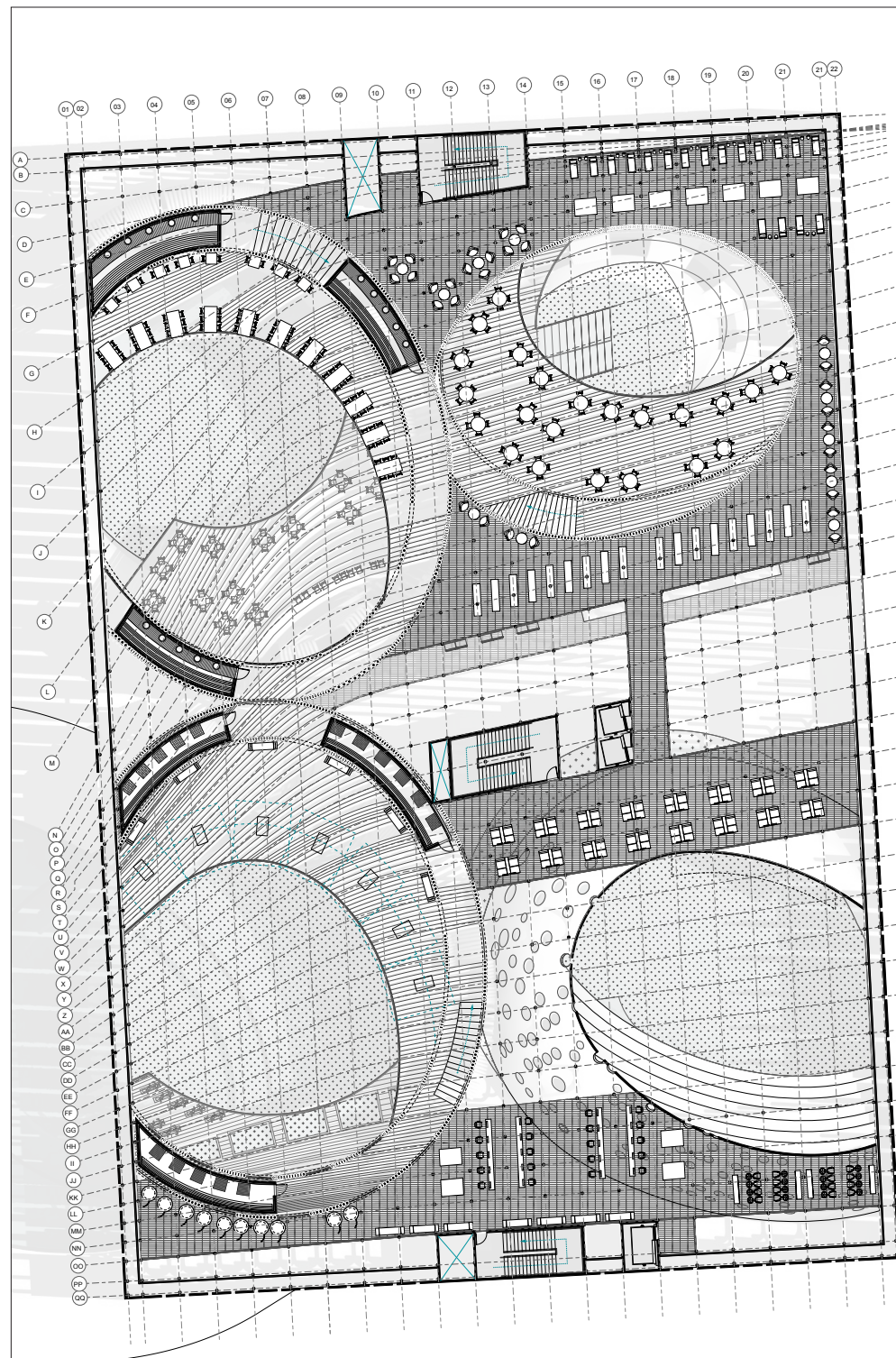
site plan

plan set

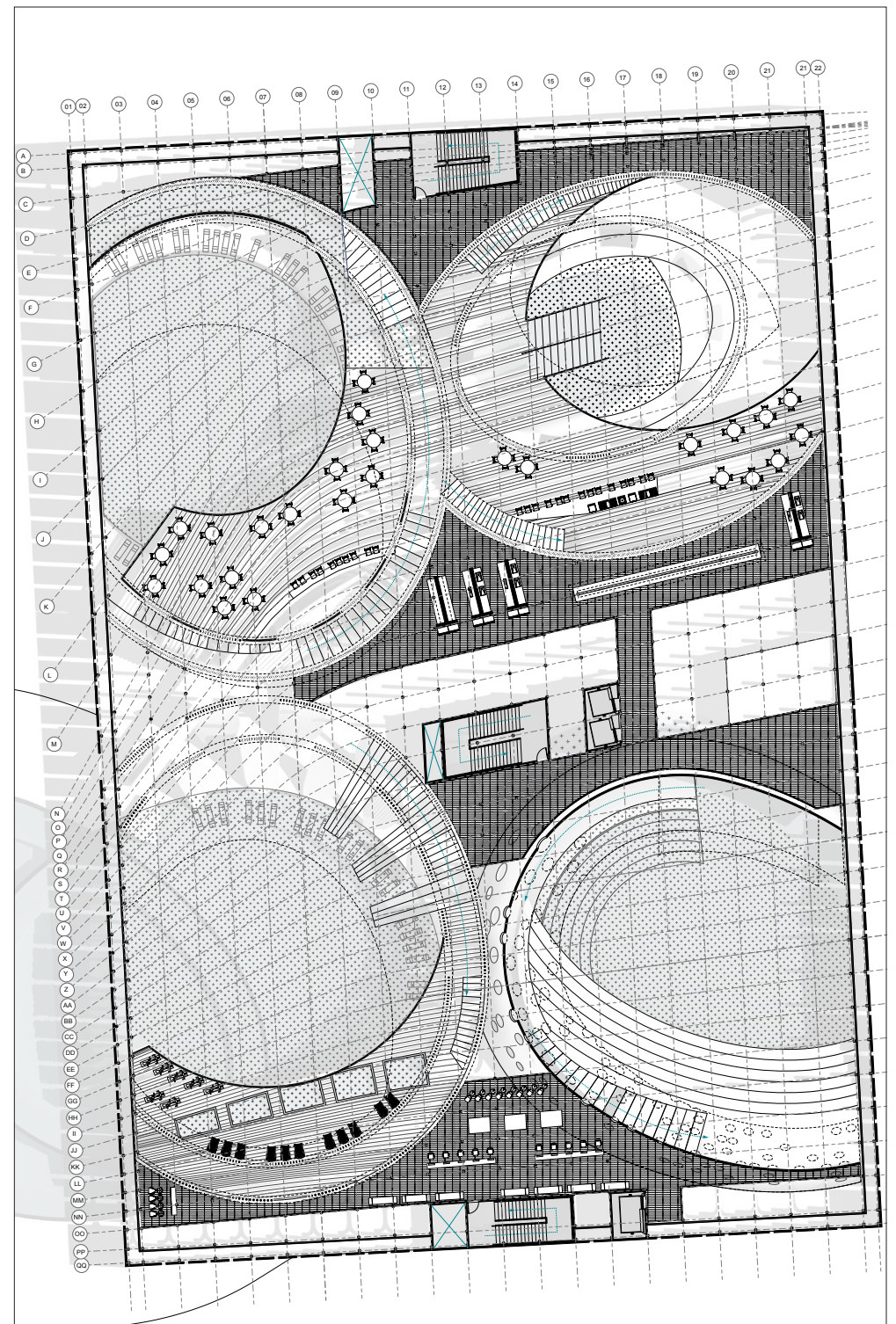


first floor plan

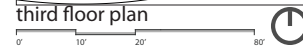




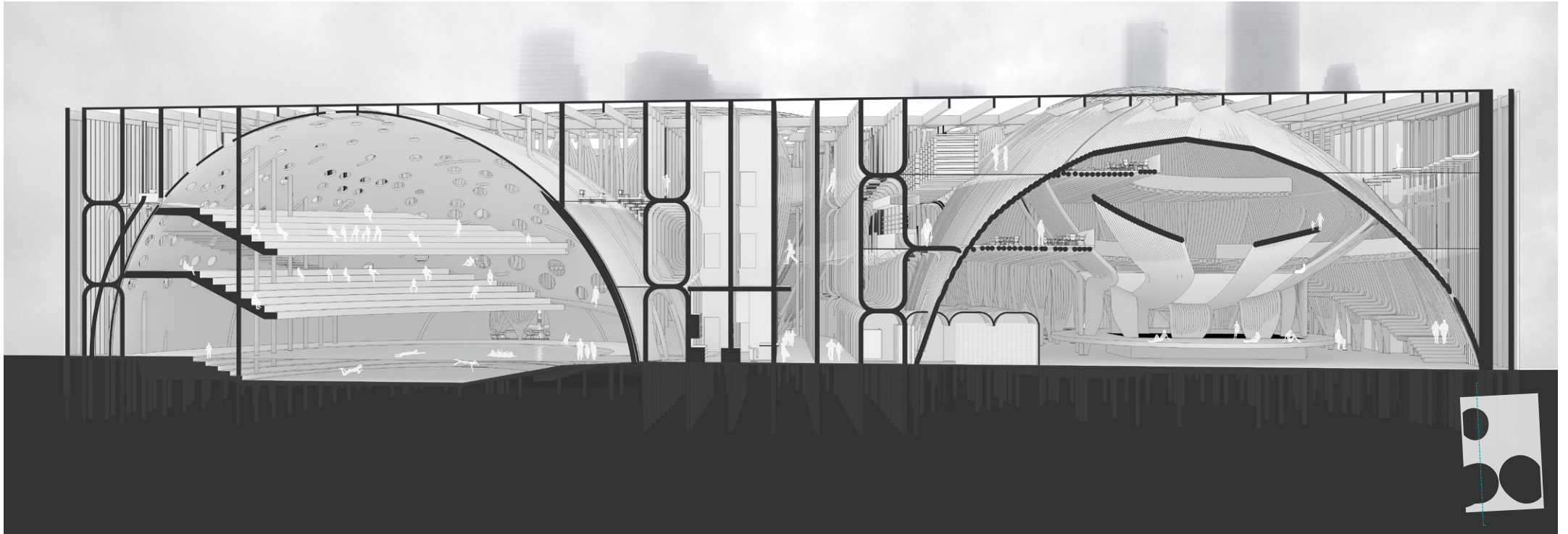
second floor plan



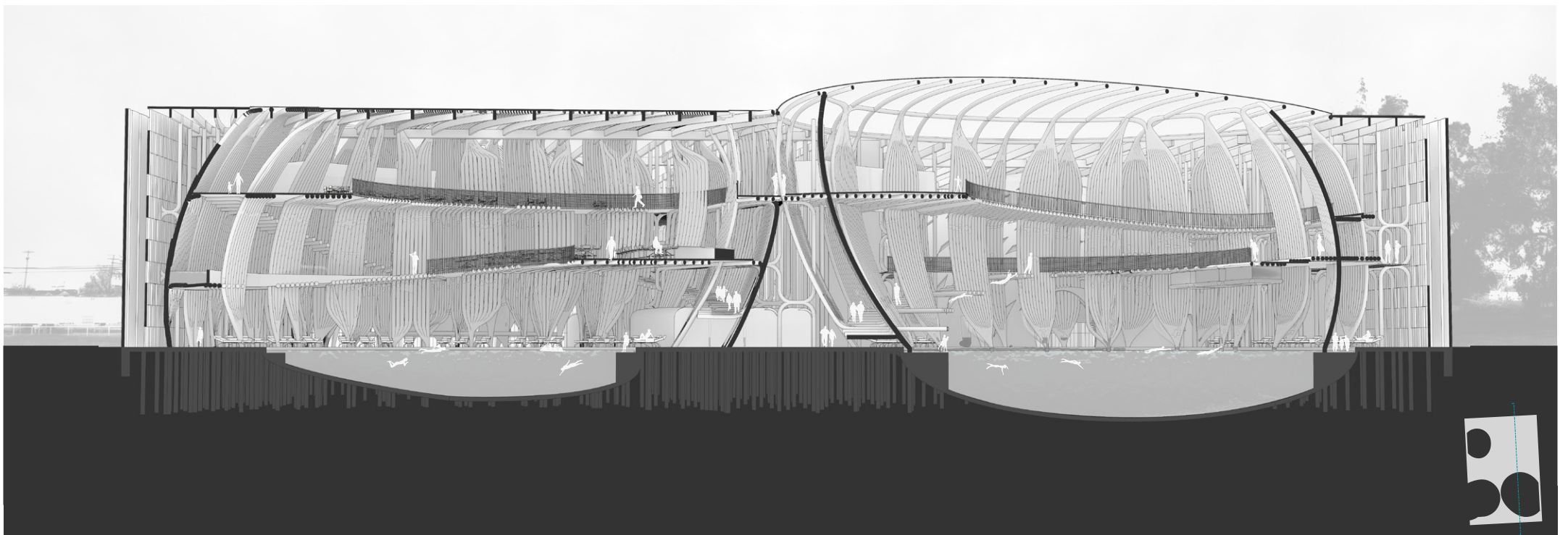
third floor plan





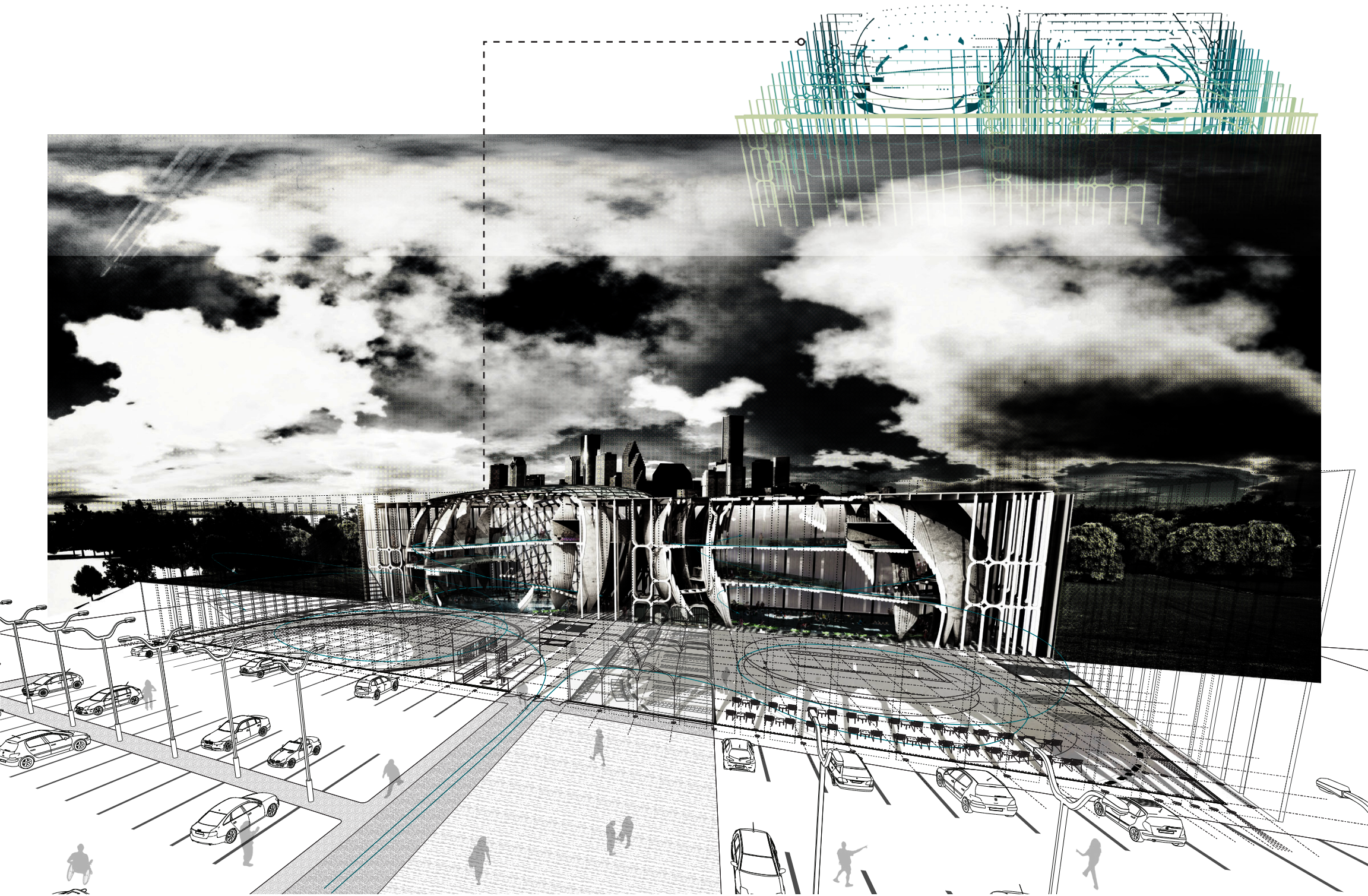


section 1



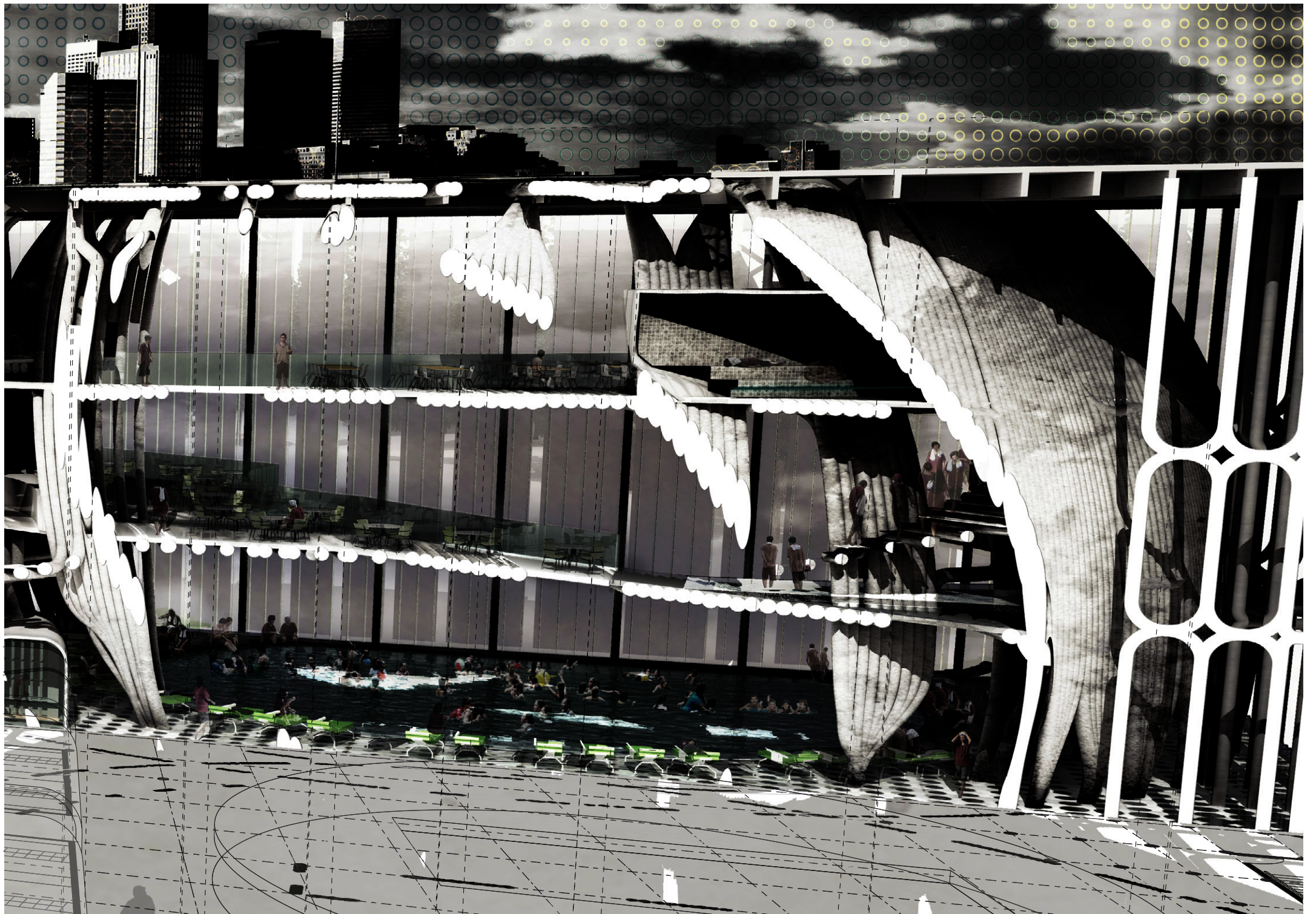
section 2





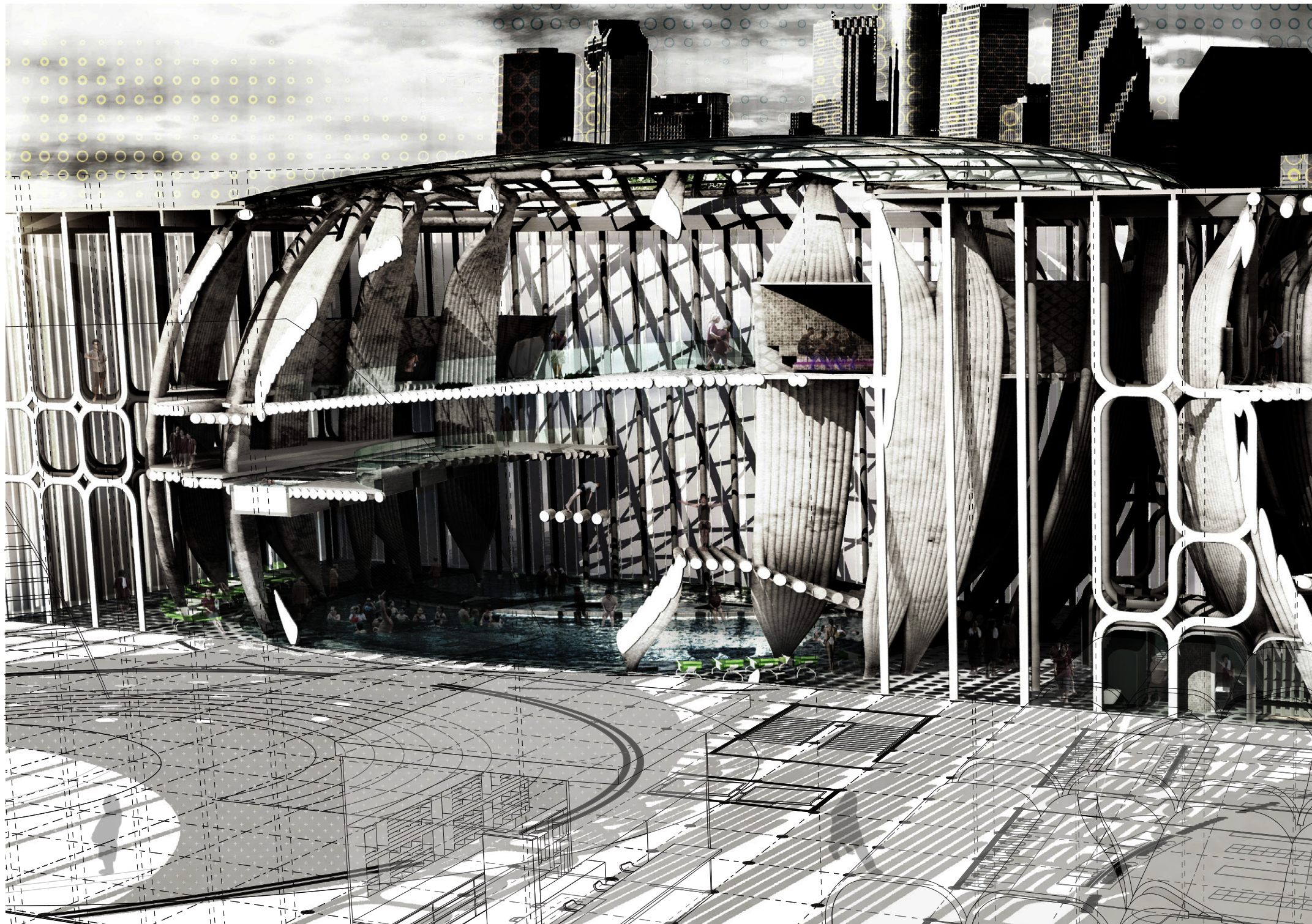
section (gg) perspective





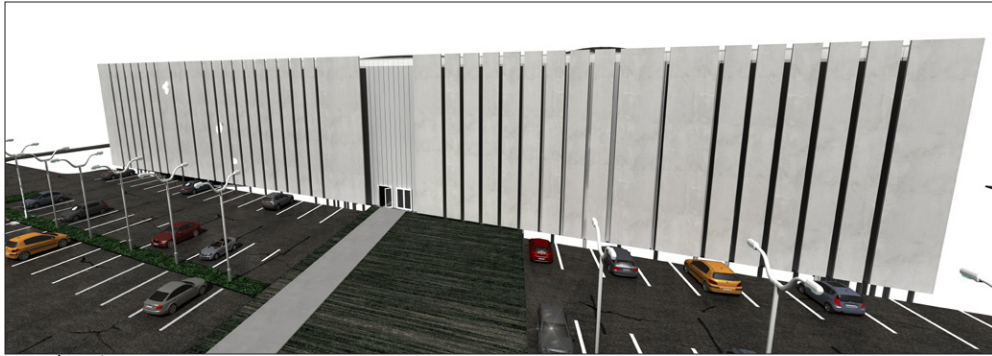
enlargement A



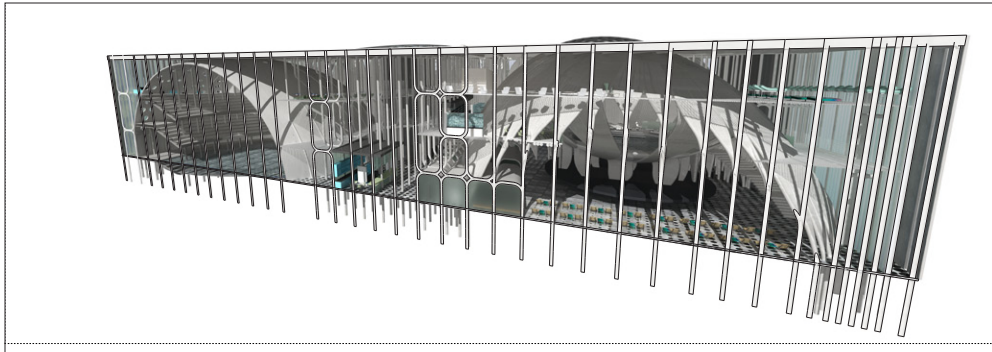


enlargement B

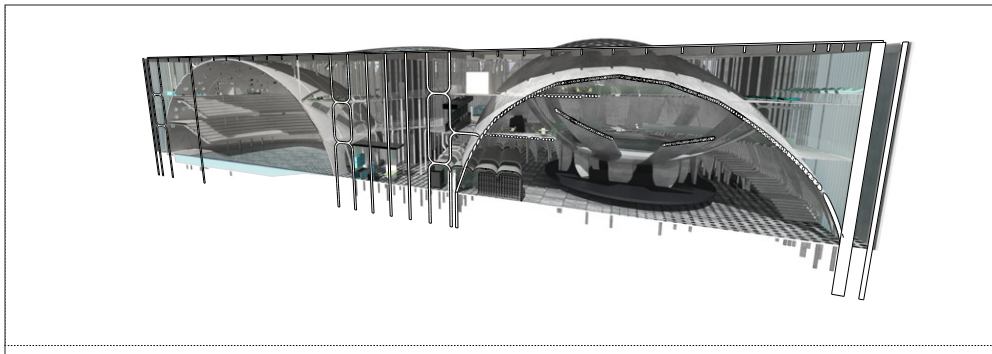




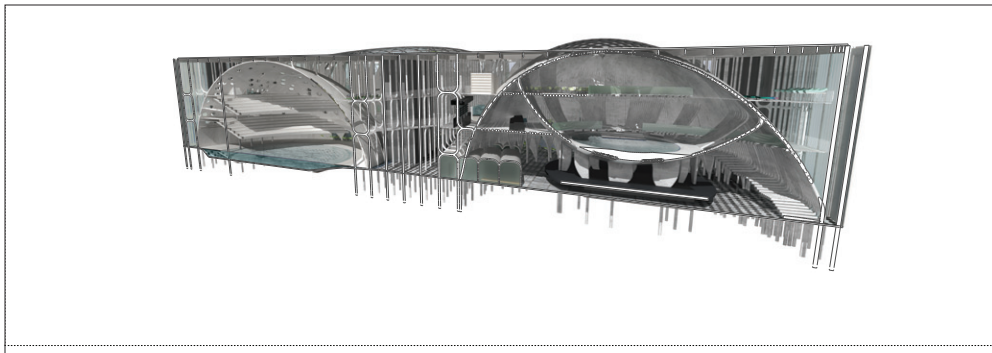
east elevation



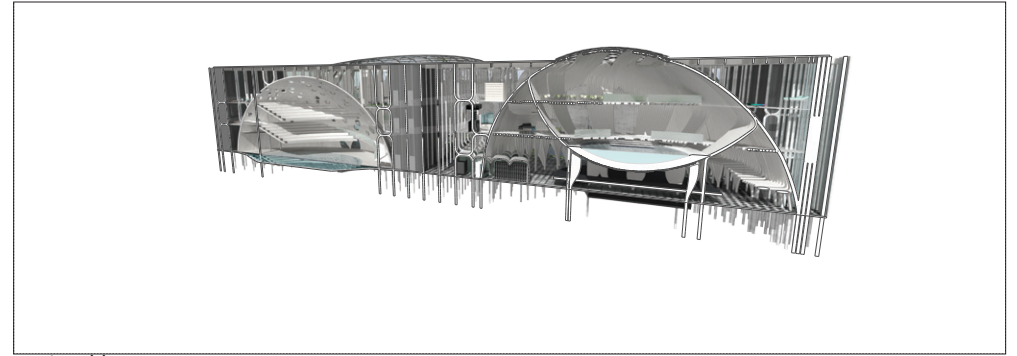
section aa



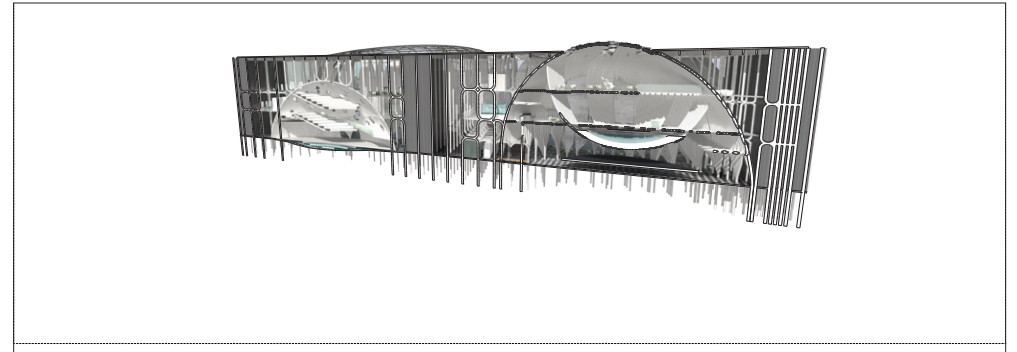
section bb



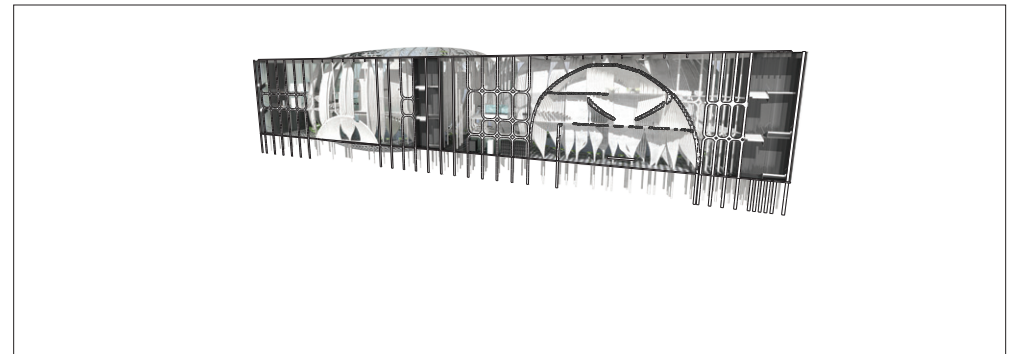
section cc



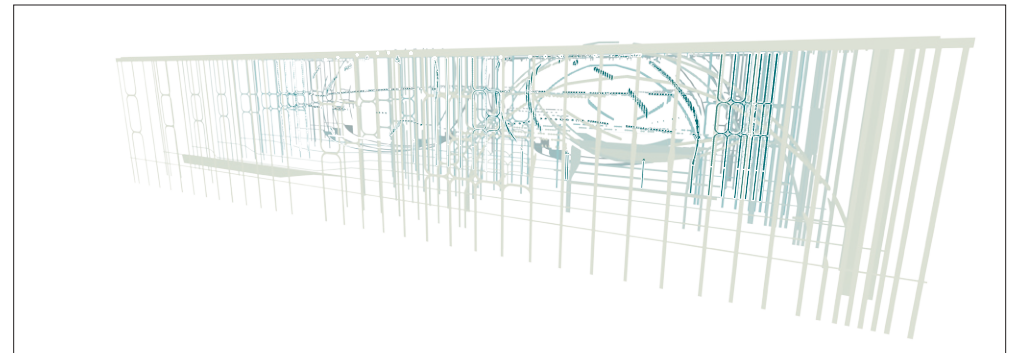
section dd



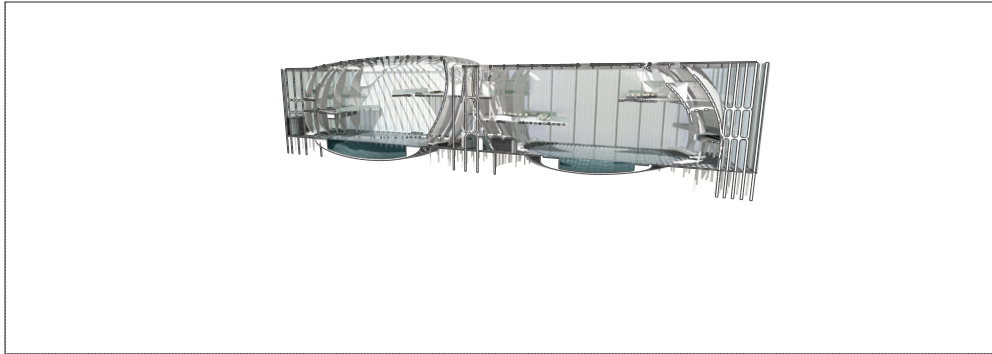
section ee



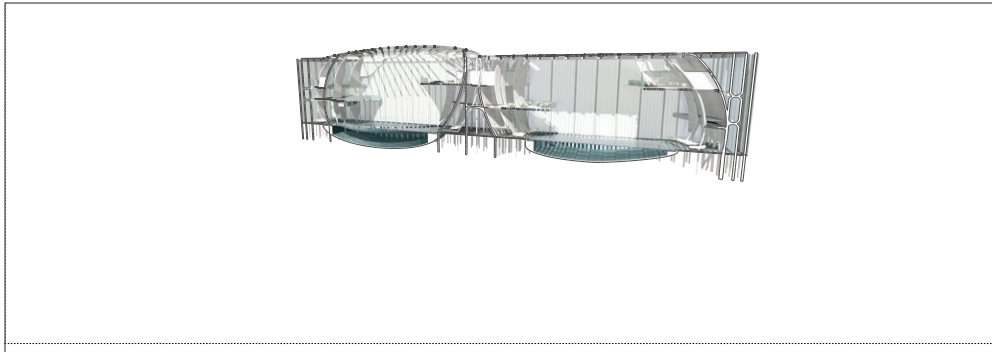
section ff



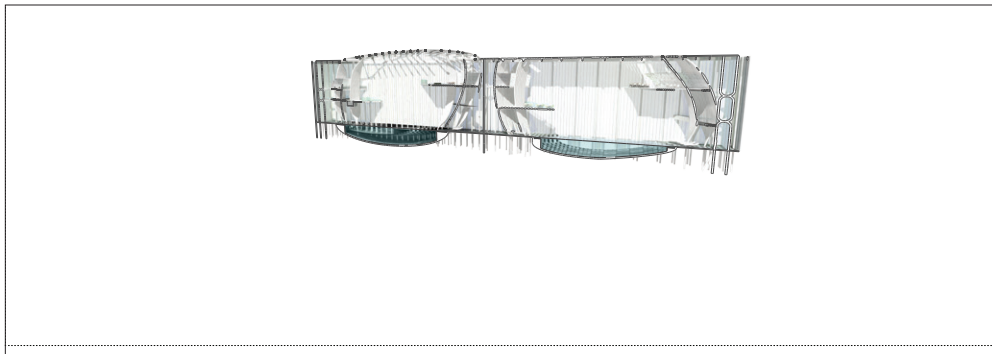
section gg (section perspective)



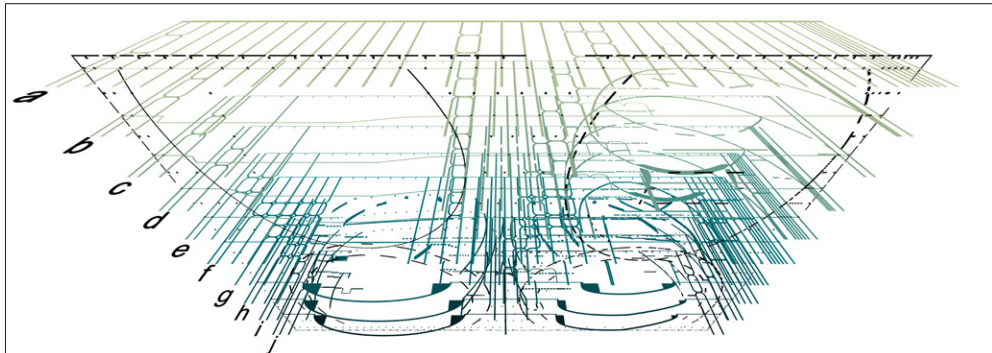
section hh



section ii



section jj



section key